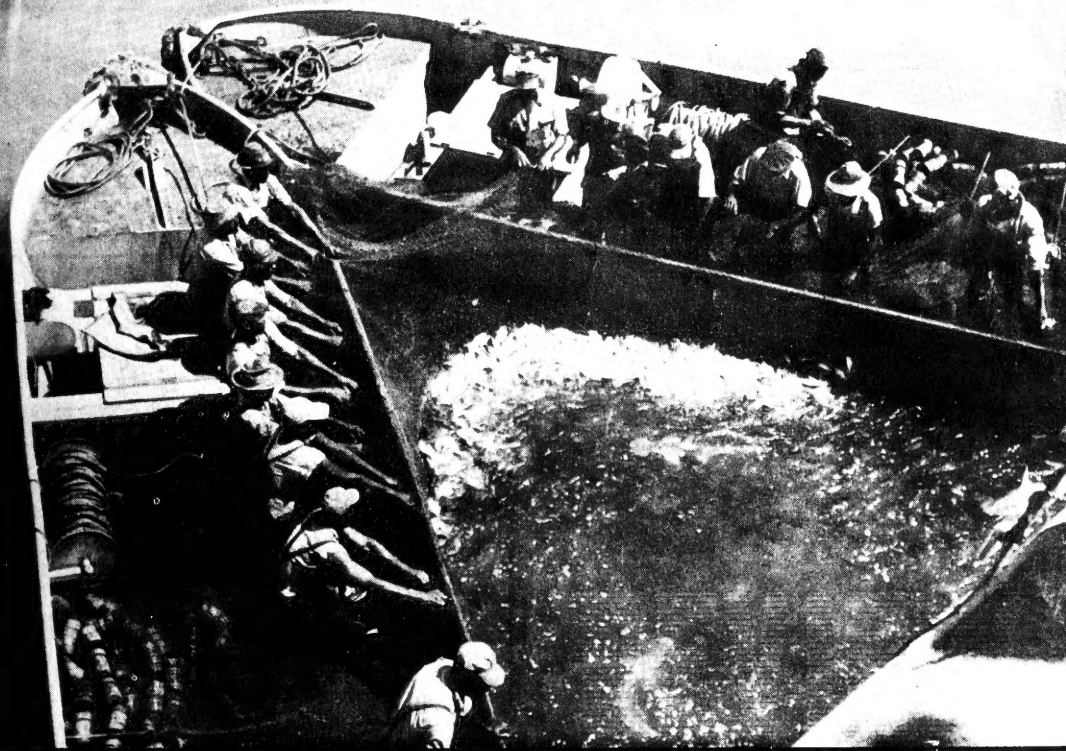


SH
11
A4465X
Fishes

COMMERCIAL SERIES REVIEW



Vol. 13, No. 2

FEBRUARY 1951

FISH and WILDLIFE SERVICE
United States Department of the Interior
Washington, D.C.



COMMERCIAL FISHERIES REVIEW



A REVIEW OF DEVELOPMENTS AND NEWS OF THE FISHERY INDUSTRY
PREPARED IN THE BRANCH OF COMMERCIAL FISHERIES

A. W. Anderson, Editor

R. T. Whiteleather, Associate Editor

Wm. H. Dumont and J. Pileggi, Assistant Editors

Applications for COMMERCIAL FISHERIES REVIEW, which is mailed free to members of the fishery industries and allied interests, should be addressed to the Director, Fish and Wildlife Service, United States Department of the Interior, Washington, 25, D.C.

The contents of this publication have not been copyrighted and may be reprinted freely; however, reference to the source will be appreciated. The Service assumes no responsibility for the accuracy of material from outside sources.

The printing of this publication has been approved by the Director of the Bureau of the Budget, December 15, 1949

CONTENTS

COVER: HAULING IN A PURSE SEINE FULL OF MENHADEN IN THE GULF NEAR THE MISSISSIPPI DELTA--THIS IS ONE OF THE SCENES TO BE FOUND IN THE NEW FILM THE STORY OF MENHADEN. IN COOPERATION WITH THE MEMBERS OF THE MENHADEN INDUSTRY, THIS FILM WAS PRODUCED AND SUPERVISED BY THE U. S. FISH AND WILDLIFE SERVICE (SEE P. 108 OF THIS ISSUE). AT THE TIME THIS SCENE WAS FILMED, THE UNUSUAL CHANT OF THE FISHERMEN WHILE THEY ARE TAKING UP THE SLACK IN THE NET WAS RECORDED FOR THE SOUND TRACK OF THE FILM.

	PAGE
PRELIMINARY FISHERIES SURVEY OF THE HAWAIIAN-LINE ISLANDS AREA -- PART III - THE LIVE-BAIT SKIPJACK FISHERY OF THE HAWAIIAN ISLANDS, BY FRED C. JUNE.....	1
EFFECT OF FLUCTUATING STORAGE TEMPERATURES ON QUALITY OF FROZEN FILLETS, BY S. R. POTTINGER.....	19
* * * * *	
RESEARCH IN SERVICE LABORATORIES:.....	28
TECHNICAL NOTE NO. 8 - PROCESSING CANNED KING AND DUNGENESS CRAB MEAT, BY M. E. STANSBY.....	29
TECHNICAL NOTE NO. 9 - CHARACTERISTICS OF OIL FROM COLD-RENDERED FUR-SEAL BLUBBER, BY WM. CLEGG.....	30
TRENDS AND DEVELOPMENTS:.....	32
ADDITIONS TO THE FLEET OF U. S. FISHING VESSELS. FEDERAL PURCHASES OF FISHERY PRODUCTS.....	32
FISHERY BIOLOGY NOTES:.....	34
METHOD FOR IMPROVING OYSTER CULTCH EFFICIENCY. SETTING OF AMERICAN OYSTER IN LONG ISLAND SOUND. NEW OYSTER LARVAE FOOD ISOLATED.....	34
O. VIRGINICA CONSISTS OF DIFFERENT RACES.....	34
CULTURE OF EUROPEAN OYSTER.....	35
CULTURE OF QUAHOG, <u>VENUS MERCENARIA</u>	35
STARFISH.....	35
METHOD DEVELOPED FOR TELLING SHAD'S AGE FROM SCALES.....	35
SEROLOGICAL TECHNIQUES BEING EXPLORED FOR USE IN FISHERY BIOLOGY.....	35
GREAT LAKES FISHERY INVESTIGATIONS:.....	36
REPORT ON SEA LAMPREY INVESTIGATIONS.....	36
GULF EXPLORATORY FISHERY PROGRAM:.....	37
OREGON TO LOCATE GROOVED SHRIMP GROUNDS OFF FLORIDA WEST COAST (CRUISE NO. 6).....	37
GULF FISHERY INVESTIGATIONS:.....	37
DRIFT CARDS BEING DISTRIBUTED IN GULF OF MEXICO. ONCE IMPORTANT FLORIDA SPONGE FISHERY FADING OUT. PACIFIC OCEANIC FISHERY INVESTIGATIONS:.....	38
JOHN E. HANNING TO PURSE SEINE TUNA IN PHOENIX AND LINE ISLANDS AREA (CRUISE NO. V).....	38
OBSERVATIONS ON THE EQUATORIAL COUNTEREQUATORIAL CURRENT TO BE CONTINUED BY <u>HUGH M. SMITH</u> (CRUISE NO. VIII).....	39
TRENDS AND DEVELOPMENTS (CONT.):.....	PAGE
SOUTH PACIFIC FISHERY INVESTIGATIONS:.....	
COOPERATIVE SARDINE RESEARCH PROGRAM NOTES FOR 1950.....	40
U. S. IMPORTS OF GROUND FISH FILLETS IN 1950.....	40
HIGHEST ON RECORD.....	40
WHOLESALE AND RETAIL PRICES:.....	
WHOLESALE PRICES, DECEMBER 1950.....	42
RETAIL PRICES, DECEMBER 1950.....	43
ECONOMIC COOPERATION ADMINISTRATION PROGRAM NOTES:.....	
DANISH VETERINARIAN IN U. S. STUDIES BACTERIOLOGICAL METHODS OF PRESERVING AND SHIPPING FISHERY PRODUCTS.....	43
INDONESIA TO USE ECA FUNDS TO RESTORE FISHING INDUSTRY.....	44
NEW SLOGAN FOR ECA SHIPMENTS.....	44
ECA PROCUREMENT AUTHORIZATIONS FOR FISHERY PRODUCTS.....	45
FOREIGN:.....	46
INTERNATIONAL:.....	
FOOD AND AGRICULTURE ORGANIZATION BUDGET FOR 1951.....	46
ADEN PROTECTORATE:.....	
STATUS OF THE FISHERIES.....	46
AUSTRALIA:.....	
FUJI-SANOA TUNA ENTERPRISES' CLIPPER FISHING IN AUSTRALIAN WATERS.....	47
BERMUDA:.....	
RESEARCH FISHING PROGRAM PLANNED.....	50
BRITISH HONDURAS:.....	
FISHERY DEVELOPMENT DEPARTMENT ESTABLISHED.....	50
CANADA:.....	
EXPANSION OF ATLANTIC COAST TRAWLER FLEET.....	51

COMMERCIAL FISHERIES REVIEW

February 1951

Washington 25, D.C.

Vol. 13, No. 2

PRELIMINARY FISHERIES SURVEY OF THE HAWAIIAN-LINE ISLANDS AREA^{1/}

PART III - THE LIVE-BAIT SKIPJACK FISHERY OF THE HAWAIIAN ISLANDS

By Fred C. June*

INTRODUCTION

The Hawaiian name for the skipjack tuna, *Katsuwonus pelamis*, is "aku." Presumably, it is the same species that is found throughout the tropical waters of the Pacific Ocean and other warm seas of the world (Kishinouye, 1923; Godsil and Byers, 1944). In the waters about the Hawaiian Islands, where it occurs in great numbers, the skipjack is the object of a rather intensive localized fishery. In terms of poundage and value to the fishermen, it is the most important commercial fish in the Territory. In 1948, total skipjack landings for this island group were in excess of 8,355,000 pounds, which was the largest catch since the fishing fleet resumed operations following a break during World War II. The largest annual catch recorded was for 1940, when over 13,420,000 pounds of skipjack, valued at \$527,666, were taken from these waters. The previous record catch was in 1937, when landings amounted to over 12,787,000 pounds, valued at \$497,037. The annual skipjack production for the period 1937-1948 is shown in figure 1.

During the war years the fishing fleet became virtually inactive, and complete catch records are not available for this period. The fish catch was not reported by species for the first two months of 1944, but skipjack landings for the last ten months of that year amounted to roughly 732,000 pounds. By the end of 1945, the skipjack fleet had regained its prewar size; however, fishing that year proved to be poor, and the total production amounted to only 3,907,000 pounds.

As in the United States, the skipjack is utilized primarily for canning. The bulk of the catch in the Islands is processed by a single cannery which packs the fish for the local market and for shipment to the U. S. mainland. Important quantities are also sold on the fresh market, for the skipjack is an important item in the diet of many of the Oriental peoples, who prefer it in the raw form or as dried fish.

TABLE OF CONTENTS

	PAGE		PAGE
DESCRIPTION AND NOTES ON BIOLOGY OF SKIPJACK	2	BAIT (CONT.):	
DEVELOPMENT OF THE FISHERY	3	METHODS OF CAPTURE	8
FISHING BOATS AND CREWS	5	FISHING METHODS	12
FISHING GEAR	6	FISHING AREAS AND SEASONS	13
BAITS	7	DISPOSITION OF THE CATCH	15
BAIT SPECIES	7	FUTURE POSSIBILITIES FOR THE DEVELOPMENT OF THE FISHERY ..	15
BAIT FISHING GROUNDS	8	LITERATURE CITED	17

* FISHERY RESEARCH BIOLOGIST, SECTION OF RESEARCH AND DEVELOPMENT, PACIFIC OCEANIC FISHERY INVESTIGATIONS, U. S. FISH AND WILDLIFE SERVICE, HONOLULU, T. H.
^{1/}PART I - THE HAWAIIAN LONG-LINE FISHERY, BY THE SAME AUTHOR APPEARED IN COMMERCIAL FISHERIES REVIEW, JANUARY 1950, PP. 1-23 (ALSO AVAILABLE AS SEPARATE NO. 244); PART II - NOTES ON THE TUNA AND BAIT RESOURCES OF THE HAWAIIAN, LEEWARD, AND LINE ISLANDS, APPEARED JANUARY 1951, PP. 1-22 (ALSO AVAILABLE AS SEPARATE NO. 270).

DESCRIPTION AND NOTES ON BIOLOGY OF SKIPJACK

The skipjack, *Katsuwonus pelamis* (Linnaeus 1758), is a member of the tunafamily (Thunnidae), although many taxonomists consider this species sufficiently distinct from other members of the tuna group to warrant placing it, together with the genera *Euthynnus* and *Auxis*, in a separate family (Katsuwonidae).

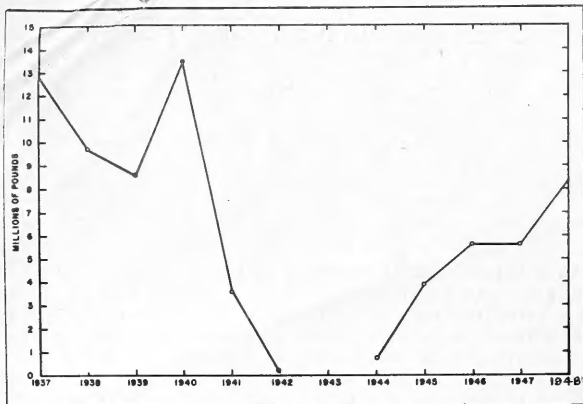


FIGURE 1 - SKIPJACK LANDINGS IN THE TERRITORY OF HAWAII, 1937-48. (NO DATA AVAILABLE FOR 1943. CATCH FOR 1944 INCLUDES MARCH THROUGH DECEMBER ONLY. DATA OBTAINED FROM THE CATCH RECORDS OF THE TERRITORIAL DIVISION OF FISH AND GAME).

Formosa, and along the entire Pacific Coast of Japan to northern Hokkaido (Kishinouye, 1923; Herre, 1940; Serventy, 1941; Clemens and Wilby, 1946; Roedel, 1948; Shapiro, 1948; Imamura, 1949). It is also found on both sides of the Atlantic, the Mediterranean Sea, and the Indian Ocean (Gunther, 1860; Day, 1878; Breder, 1929; LaMonte, 1945).

The skipjack may be recognized by the four or more dark longitudinal stripes on the silvery belly and along the sides below the lateral line. The back is dark bluish-violet in life, becoming faded when the fish dies. The structure of the body is remarkably streamlined, with the first dorsal, pectoral, and ventral fins fitting into grooves when they are folded back. The body is nearly round in cross-section and pointed at both ends; it is naked except for a corselet of scales in the region around the pectoral fins and a few minute scales scattered over the remainder of the body. There is a median keel on each side of the slender caudal peduncle. A series of 7 to 9 finlets follow the second dorsal and anal fins. The head is rather large and conical. The mouth is terminal in position, with a single row of teeth on both jaws. The skipjack reaches a maximum weight of about 40 pounds. In Hawaiian waters the average size taken by the commercial fishery is approximately 15 pounds.

The skipjack is a fast-swimming, migratory fish that characteristically travels in schools which are often composed of many hundreds or even thousands of individuals. The schools found in Hawaiian waters are generally rather small, although Herre (op. cit.) mentions one school reported off the coast of Oahu that was about ninety miles long and ten miles broad. It has been demonstrated (Schaefer, 1948) that this species shows a marked tendency to aggregate by similar sizes. Schools are often encountered in which big-eyed and yellowfin tuna of comparable sizes travel together with skipjack.

The skipjack is a circum-tropical species, ranging into temperate waters only during the warmer months. In the Pacific it is distributed from the coast of Canada off Vancouver Island southward along the coastlines of the United States and Central America to Chile, westward through the Hawaiian, Caroline, Marshall, and Marianas islands to St. Helens in Tasmania, thence northward through the southern parts of New South Wales, the Republic of the Philippines,

Recent studies by Japanese investigators (Imamura, op. cit.; Suyehiro, 1938) on the feeding habits and stomach contents of this species have shown that its food consists of a great variety of organisms, the most important of which include squid, crustacea, sardines, anchovies, flying fish, etc. Kishinouye (op. cit., p. 454) stated that the food of the skipjack taken in Japanese waters generally consisted of "medium-sized plankton: amphipods, Squilla's larvae and other crustaceans, Pteropods, heteropods (chiefly Atlanta), calamaries, and immature or small fishes, etc."

Little is known concerning the spawning and early development of the skipjack inhabiting the Pacific Ocean. There is evidence, however, that one of the spawning areas for this species occurs in the eastern Pacific off the coast of Central America. Schaefer and Marr (op. cit.) report the capture of two juvenile specimens, 21 mm. and 44 mm. total length, in the oceanic waters off Costa Rica and upper Panama. Sexually mature and spent adults were also found to be present in the same area during the early months of the year. Marr (ibid.) indicates that a spawning ground for this species probably exists in or near the northern Marshall Islands area during the summer months. In addition, juvenile specimens, 113 to 183 mm. in length, have been collected in the vicinity of the Hawaiian Islands during the summer months (Eckles, 1949). There is some evidence that spawning also occurs in many other places in the Pacific (Kishinouye, 1927; Matsui, 1942; Hatai et al, 1941). Present knowledge indicates that the eggs, larvae, and juveniles, like the adults, are entirely pelagic.

DEVELOPMENT OF THE FISHERY

The skipjack fishery in the Hawaiian Islands has developed from a small-scale subsistence fishery carried on by the early native Hawaiians to the commercial fishery of today, conducted mostly by fishermen of Japanese ancestry. From the earliest times, Hawaiian fishermen sought the skipjack in the waters lying adjacent to the small villages scattered throughout the major islands in this group. The methods of capture and fishing gear used by these natives were similar to those employed in other parts of Polynesia (Beckley, 1883). The outrigger canoe was the characteristic craft found throughout this vast area. The canoes which were used for fishing in Hawaii varied from about 15 to 35 feet in length (Hornell, 1936). The smaller canoes usually carried but a single fisherman; however, when fishing specifically for skipjack, frequently several fishermen would combine forces. Two of the large canoes from which the outriggers had been removed were lashed parallel to each other with two cross-pieces. This simple arrangement provided a much safer sea-going craft than a single canoe carrying a lone fisherman, for the search for the skipjack often carried the fishermen considerable distances offshore. A double fishing canoe carried a crew of three in each hull, although only one man in each was actually occupied with the fishing; the others managed the canoe. The canoes were sometimes rigged with a single sail, but paddles were the most common means of propelling these craft.

The fishing technique used by the native Hawaiians for catching the pelagic skipjack were, in certain respects, similar to those practiced in the Islands today. Cobb's report, "The Commercial Fisheries of the Hawaiian Islands," published in 1903, gives an interesting account of native fishing:

"ON REACHING THE FISHING GROUND THE FISHERMEN LOCATE THE FISH BY WATCHING THE SEA GULLS....AS SOON AS THE SCHOOL HAS BEEN SIGHTED THE CANOES ARE WORKED AROUND IN FRONT OF IT, AND THE FISH ARE ATTRACTED TOWARD THE BOAT BY MEANS OF A HANDFUL OR TWO OF SMALL LIVE BAIT THROWN INTO THE WATER.... TWO MEN STAND UP IN THE STERN OF THE BOAT, HOLDING IN THEIR HANDS A BAMBOO POLE ABOUT 12 FEET LONG WITH A LINE OF THE SAME

LENGTH ATTACHED, AND THE PEARL HOOK TIED TO THE END OF THIS LINE. BY A QUICK MOVEMENT THE LINE AND HOOK ARE SLAPPED VIOLENTLY ON THE SURFACE OF THE WATER AND THEN DRAWN TOWARD THE BOAT.... AS SOON AS THE FISH IS HOOKED, THE LINE IS SWUNG UP OVER THE FISHERMAN'S HEAD SO AS TO MAKE ALMOST A COMPLETE REVOLUTION. IT IS VERY NECESSARY THAT THE LINE SHOULD BE KEPT TAUT, AS, OWING TO THE FACT THAT THE HOOK HAS BUT A SLIGHT BARB, THE FISH WOULD SHAKE ITSELF LOOSE SHOULD THE LINE SLACKEN IN THE LEAST... AS THE HOOKED FISH IS DESCRIBING THIS REVOLUTION THE FISHERMAN SWINGS AROUND TO MEET IT AS IT NEARS HIM, BOWING OUT HIS RIGHT ARM. WHEN THE FISH COMES BETWEEN HIS ARM AND SIDE HE CLOSES THEM UP AND THE FISH IS CAUGHT, UNHOOKED, AND DROPPED INTO THE BOAT.

Containers of several different types were used for carrying live bait. The double fishing canoes usually carried a box about 20 feet long, 2 feet high, and 16 inches wide, lashed below the cross-pieces between the canoes. The sides and bottom of the box were perforated to allow sea water to enter and circulate.

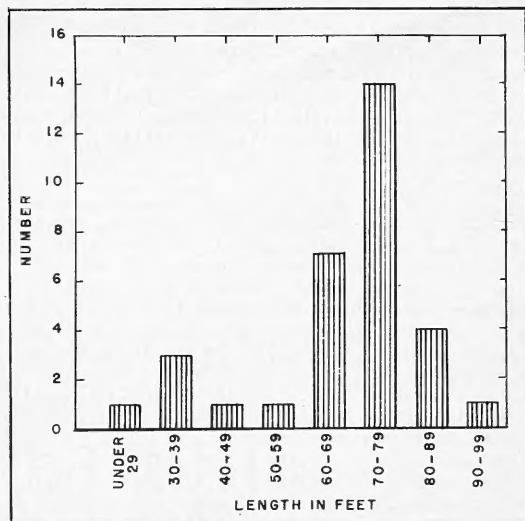


FIGURE 2 - LENGTHS OF THE 32 BOATS THAT FISHED EXCLUSIVELY FOR SKIPJACK IN THE TERRITORY OF HAWAII IN 1948.

At the time of Cobb's report, the skipjack fishery had already emerged as one of the more important commercial fishery enterprises in the Hawaiian Islands. In 1900, skipjack ranked fifth in poundage among the various commercial species caught in these waters, and total landings for that year amounted to slightly over 422,000 pounds. Of this catch approximately 401,000 pounds were sold on the fresh market, with the remaining 21,000 pounds processed as dried skipjack.

The early commercial development of the skipjack fishery in the Islands was due primarily to the efforts of the Japanese immigrants. According to a report, "Investigation on Fishing in Foreign Countries," published in 1938 by the Japanese government fisheries bureau, the first alien to be engaged in commercial

operations in the Territory was a man named Kametaro Nishimura, an emigrant from Yamaguchi-ken, who began fishing here in 1885. It is not definitely stated, however, that Nishimura fished specifically for skipjack. In 1899, Gorokichi Nakasuji, a native of Wakayama-ken brought a fishing boat and gear from Japan to Hawaii and began fishing commercially for skipjack. Following the introduction of Japanese fishing methods and gear, the fishery underwent a period of rapid expansion.

The skipjack boats used by the early Japanese fishermen were of the sampan design. These boats were typically about 20 feet in over-all length, with a 4½-foot beam, and a 16-inch draft. They were usually propelled by a scull, although many of the boats were also rigged for sails. Each was fitted with an overhanging stern which housed the rudder. There was a series of wells built into the center of the boat in which live bait was carried. The wells were from 12 to 15 inches deep and fitted with screened holes along the bottom to allow sea water to enter and circulate in the wells when the boats were under way. Most of the sampans carried a fishing crew of from 4 to 6 men.

The first gasoline-powered skipjack boat in the Islands was successfully operated in 1907. Soon afterward, larger boats were designed with many new features, making it possible for practical fishing operations to be carried on at increasingly greater distances offshore. Many of the improved features which were incorporated in the development of these boats have been attributed to a Japanese fisherman named Kitayama, who was active in the fishery in the 1930's. The first flying bridge was installed in 1931, and the first pump-spray systems, which are used during fishing, were added around 1935. Beginning about 1939, the design of the hull was altered to allow more freeboard forward.



FIGURE 3 - A TYPICAL SAMPAN-TYPE FISHING BOAT USED IN THE HAWAIIAN SKIPJACK FISHERY.

The 1948 fishing fleet was comprised of 32 boats that fished exclusively for skipjack. Of these, 21 boats were based at Honolulu; 4, on the island of Maui; and 7, on the island of Hawaii. In addition to the regular fleet, there were a number of small boats that operated seasonally from various ports throughout the islands.

FISHING BOATS AND CREWS

The present-day Hawaiian skipjack boats have evolved from the Japanese sampan-type tuna boats which were introduced in these waters around 1900. Various modifications in design have given rise to a distinct type of vessel adapted to local needs

and conditions. These boats have a high narrow bow, with moderate freeboard aft, and vary from 29 to 92 feet over-all (figure 2). The majority of the boats in the fleet are from 70 to 88 feet in length, with a beam of from 13 to 16 feet. They are powered by Diesel engines of either the slow-speed, heavy-duty type, ranging from 135 to 250 h.p. or of the high-speed type, ranging from 165 to 330 h.p. The general features of this type of vessel are shown in figures 3 and 4.



FIGURE 4 - DECK ARRANGEMENT OF A TYPICAL SKIPJACK FISHING BOAT, KEWALO BASIN, HONOLULU.

These boats are completely decked and fitted

with a pilothouse and flying bridge amidships. The engine room and a low trunk cabin are forward, with sleeping quarters for the crew provided in the forecastle and the pilothouse. The boats are equipped with radio, but only a few have adequate navigational equipment to permit long-range sea trips. There are from 2 to 6 live-bait wells fitted below the main deck abaft the engine room. Only two of the boats in the fleet are equipped with pump-circulating systems in the bait wells. On the remaining vessels, circulation is provided by a series of screened holes along the bottom of the well which allow sea water to enter when the boats are underway. If bait is carried aboard these vessels while lying at anchor in quiet water, it is necessary for the crews to rock the boats to insure proper circulation in the well; however, on boats that have pumps installed for fraining the bait wells, the pumps are used to circulate water in the wells when hove to under these conditions.

A sponson extends along both sides of the after deck and across the stern. It is from $3\frac{1}{2}$ to 4 feet wide and is raised about 2 feet above deck. Storage space is provided here for food and water. The sponson usually also houses a gasoline stove, since very few of the boats have any sort of galley. The skiff is lashed along the starboard side of the raised trunk cabin.

These boats are equipped with a series of nozzles spaced at 4-foot intervals across the stern and along the after port and starboard gunwales through which sea water is pumped during fishing. It is claimed that the spray excites the skipjack into biting; in addition, the spray may also serve to screen the boat and movements of the fishermen.

Stowage for the catch is provided in the bait wells as they are emptied of bait during fishing. Since most boats operate on daily runs out of port, refrigeration is not essential. However, an ice load of about 3,000 pounds is usually carried to insure preserving the catch should a fishing trip last several days. The total carrying capacities of the boats vary from about 10 to 30 tons.

The crews of the skipjack boats are predominantly of Japanese extraction. The larger boats in the fleet maintain crews of from 9 to 13 men, while some of the smaller boats employ crews of only 3 or 4. The crew consists of a captain, an engineer, and the fishermen. Usually one of the more experienced members of the fishing crew does the chumming.

Fishing is done on a share basis. The crews are usually paid at the end of each week, after operating expenses, such as fuel, oil, and ice, have been deducted from the gross. The boat owner's share is 30 percent; the captain receives a 5 percent bonus, and the remaining 65 percent is divided equally among the crew. Food expenses for the fishing trip are usually deducted from the crew's share, with all other than the above mentioned expenses being paid by the boat owner.

FISHING GEAR

The gear used for catching skipjack consists of a bamboo pole, to which is attached a length of line bearing a hook at its end. The poles, the largest of which are from $2\frac{1}{2}$ to 3 inches in diameter at the butt, vary from $7\frac{1}{2}$ to 15 feet in length. The shorter poles are generally used for landing fish weighing over 20 pounds, while the longer poles are used for catching fish of smaller size. A small loop of linen is seized to the upper end of the pole, to which is fastened a 6- to 12-foot length of line. The line is fabricated by hand by twisting together 2 strands of size 40-3 or 50-3 Irish linen thread, with from 5 to 10 threads to a strand. A 12- to 16-inch

length of galvanized or piano-wire leader, which bears the hook, is attached to the lower end of the line. The leader is fastened by a short length of linen line in such a manner that it may be rapidly removed and changed during fishing. A 2-inch loop of linen line at the lower end of the leader provides for attachment of the hook.

Galvanized barbless hooks are used in various sizes to suit the size of fish taken. A plain hook is used for fishing with live bait when the skipjack will not take the more commonly used artificial jig or striker. The jig consists of a hook, the shank of which is embedded in tubular lead or brass. Various colored feathers or threads are added to make an attractive lure. A bit of dried "mahimahi" (Coryphaena hippurus) skin or a short length of quill is fastened around the base of feathers to prevent fraying. Hooks of various types are shown in figure 5.

BAIT

BAIT SPECIES: Live bait is essential in pole-and-line fishing for skipjack. Several different types of small fish are used, depending upon their availability. The most common bait fish in Hawaiian waters is a small anchovy, with the local name "nehu," (Engraulis purpureus Fowler). It is a small omnivorous shore fish that occurs in schools over sand and mud bottoms in most of the larger bays and inlets that fringe the coastlines. It appears to have a rather short life cycle and grows to a maximum length of about 3 inches. This species is preferred above all others by the skipjack fishermen because, in addition to its good survival qualities in the bait wells, it characteristically "schools up" close to the boat when scattered as chum. Furthermore, nehu are not overly active in the water, and for this reason, the skipjack do not strike the hooks excessively hard in response to the chum. Nehu comprise about 95 percent of the total bait catch in the Territory (table 1).

The second most important species used for live bait is a member of the silversides family, to which belongs the jack smelt and the grunion found off the Pacific Coast of the United States. This bait fish is known locally as "iao" (Atherina insularum Jordan and Evermann), and although it is not as abundant in this locality as the nehu, it is a much harder bait and is readily taken by the skipjack. Many fishermen claim, however, that because of the larger size of the iao, it is not as suitable for bait as the nehu. Several members of the herring family (Spratelloides delicatulus Bennett, locally called "piha" and Etrumeus micropis Schlegel, called "makiawa"), when obtainable, are also utilized.

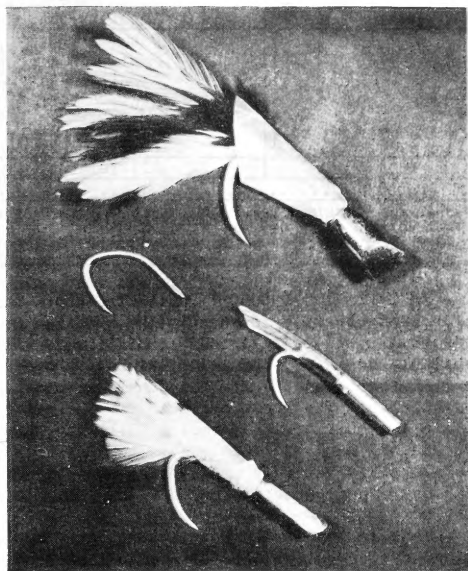


FIGURE 5 - VARIOUS HOOKS USED IN THE HAWAIIAN SKIPJACK FISHERY. THE UPPER JIG IS AN IMPORTED JAPANESE HOOK. THE BARE HOOK AT LEFT CENTER IS USED WHEN FISHING WITH LIVE BAIT. THE REMAINING TWO JIGS ARE OF THE TYPES MOST COMMONLY USED.

Table 1 - Live Bait Fish Catch in Boxes Taken by the Skipjack Boats, Territory of Hawaii, 1946-48

Species	Locality	1946	1947	1948
Nehu	Oahu	2,788	3,615	4,193
	Maui	1,134	908	1,899
	Hawaii	235	245	624
	Kauai	12	89	155
	Molokai	34	25	82
	Lanai	-	-	15
Other Bait Fish	All Islands	107	243	339
Totals		4,310	5,125	7,307

1/USUALLY 6 BUCKETS OF BAIT ARE PLACED IN EACH BAIT WELL WHICH IS CALLED A BOX. (A BUCKET MAY CONTAIN ANYWHERE FROM 25 TO 75 PERCENT FISH BY VOLUME. (SEE TEXT, PP. 10 AND 12))
SOURCE: BASED ON CATCH RECORDS OF THE TERRITORIAL DIVISION OF FISH AND GAME.

BAIT FISHING GROUNDS: While the above bait species are generally distributed throughout the main islands in the Hawaiian group, the relative abundance of the different species in various localities is limited by the habitats of suitable types available to them. The principal bait grounds on the island of Oahu are Kaneohe Bay, Pearl Harbor, and the Ala Wai Canal, with secondary areas located at Heeia, Waikane, and Waialua. The boats operating in the waters adjacent to the island of Hawaii obtain the bulk of their bait in Hilo Bay, Kawaihae Bay, and Kalihi. The chief bait grounds off Maui are Kehei Bay, and Maalaea Bay, while along the coast of Molokai, Kaunakakai is the only area worthy of note. Minor bait grounds also occur at Nawiliwili Bay and at Hanapepe Bay off the island of Kauai.

Kaneohe Bay is the most consistently employed baiting ground of all. Between 50 and 60 percent of the total annual nehu catch is taken from this area alone. Although seasonal fluctuations in abundance occur, both nehu and iao, as well as the other species mentioned, can be taken here throughout almost the entire year. Pearl Harbor supports considerable quantities of both nehu and iao, but baiting operations in this area have been restricted by various Naval regulations, and for this reason, it has not been visited by the skipjack boats as often as some of the other areas.

The available bait supply in the main Hawaiian islands is not greatly in excess of the needs of the present fleet, and any great increase in the number of live-bait fishing boats using these baiting grounds is not to be expected. Hence, much expansion and development of the live-bait fishery for skipjack in these waters would require that bait be obtained from other regions. Such areas as those adjacent to French Frigate Shoals and other islands in the leeward chain may prove to be substantial baiting grounds. Iao, for example, are known to occur in quantities at times in the vicinity of French Frigate Shoals (Smith and Schaefer, 1949; Eckels, 1949). Other species suitable for use as live bait have also been captured in the same area.

METHODS OF CAPTURE: Lift nets are used at night for catching nehu and piha. The nets are from 15 to 25 fathoms long and about 12 fathoms deep. The dimensions and rigging of a net of this type are shown in figure 6. This gear is operated in combination with a submarine light which is used to attract the fish as the fishing boat lies at anchor over the bait grounds. The light is attached to the end of a pole and supported about 20 feet out from the port side of the boat. To prevent the light from splashing and possibly frightening the fish as the boat rolls, the globe is hung several feet below the surface of the water. The light is turned on about dark, and it is usually left on until about an hour before daybreak when a bait haul is made. If bait is especially plentiful, the net may be set whenever

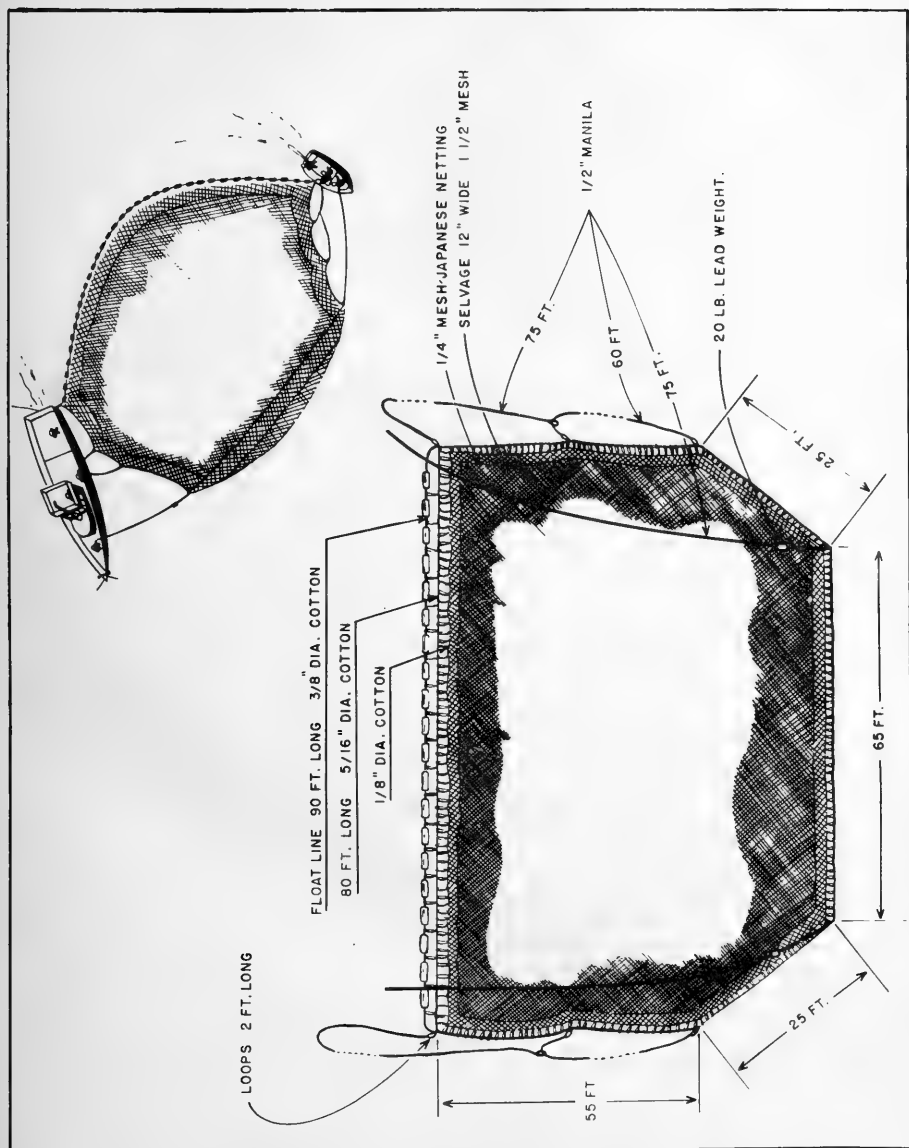


FIGURE 6 - LIFT NET USED FOR CAPTURING BAIT FOR SKIPJACK FISHING

sufficient numbers of fish have been attracted by the light. Frequently, a rheostat is used to dim the light shortly before netting operations begin. This technique causes the bait to concentrate more compactly around the light, and it also serves to screen the movement of the net in the water. In making a bait haul, the net is paid out from the net skiff. One end of the cork line is secured to the port side of the stern of the fishing boat. The crew aboard the skiff pay the net out as the skiff is moved perpendicularly to the port side of the fishing boat. When the net is completely paid out, the skiff is turned parallel to the fishing boat, and the crew aboard the skiff then pull the lead line and the rib lines as the skiff moves along the outer edge of the net. Meanwhile, aboard the fishing boat, the lead line is pulled from the bow and made fast, as are the rib lines. At a signal from the captain, the net is pulled on both the skiff and the fishing boat. As the net is "dried up," the fish are pocketed between the boat and the skiff. The light is turned out just before brailing begins, and the fish are transferred from the bag of the net to the bait wells aboard the fishing boat.

The fish are dipped out of the net with a bucket by one man standing in the skiff. Lifting the bucket from the water, he passes it to a second man standing along the gunwale of the fishing boat where it is taken by the next man standing over the bait well. The bucket with the fish is completely immersed in the water in the well before it is emptied and the fish liberated. A similar chain of men return the buckets to the man brailing from the skiff. Every precaution is taken to avoid injury to the fish.

Often the amount of bait caught during night fishing is not sufficient for the trip to sea. In this event, an attempt is made to supplement the catch with iao. This species is captured with surround nets during the daytime, since it does not respond to the artificial light at night as do the nehu and piha. The surround nets used for capturing "day bait" differ considerably from the night nets, both in construction and in operation. While there are many variations in the dimensions of these nets, they are generally about 80 fathoms long and 4 fathoms deep, with a fairly deep bunt. The details and dimensions of a net of this type are shown in figure 7.

A net skiff with an outboard motor attached is generally used for setting the surround net in waters over 1 or 2 fathoms deep. When a school of bait fish has been located, the net is paid out from the skiff as the skiff encircles the school. When the set is completed, the two ends of the net are pulled aboard the skiff. One of the fishermen holds the junction of the two ends of the lead line together to prevent the fish from escaping alongside the skiff, while five or six fishermen, wearing goggles, dive down and work the lead line over the bottom and thus keep the net from becoming snagged. When the net is sufficiently "dried up," the bait is brailed from the pocket of the net into a bait compartment built in the center of the skiff. The skiff then proceeds to the fishing boat where the bait is transferred to the bait wells. In the event that bait is caught close to the anchored fishing boat, the net with the captured fish is towed directly to the boat where the fish are brailed from the net into the wells. Since many of the baiting areas are over shallow coral-studded bottoms, it is often necessary for the fishing boat to anchor at a considerable distance from the scene of baiting operations.

When fishing in shallow waters close inshore, the surround net is operated in the same manner as a beach seine, and the captured bait is transported to the fishing boat by means of the bait skiff.

Bait is measured by the "bucket." The number and weight of fish per bucket varies considerably due to differences in bucket sizes and the concentration of

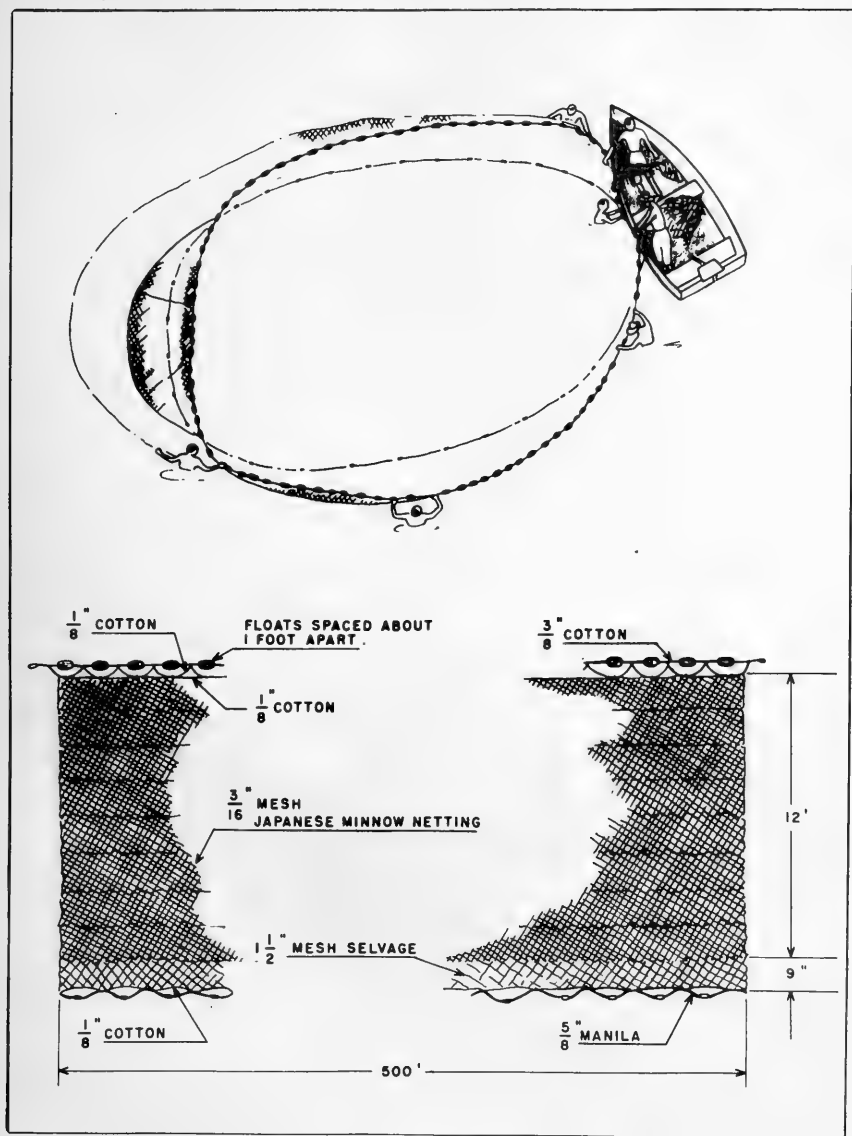


FIGURE 7 - SURROUND NET USED FOR CAPTURING BAIT FOR SKIPJACK FISHING.

bait in the net at the time of brailing. A bucket may contain anywhere from 25 to 75 percent fish by volume; hence any estimate of the amount of bait taken by the skipjack fleet is but a rough measure of the catch. Usually 6 buckets of bait are placed in each bait well which is called a "box." Since the size of the bait wells and the circulation therein vary considerably from boat to boat, the bait capacity of the wells, therefore, show considerable variation, so anywhere from 4 to 8 buckets may be a "box" depending on the particular vessel.

FISHING METHODS

Since the skipjack is a schooling fish, its presence may be detected in several ways. Schools may be encountered where the fish are finning or jumping at the surface. Breezing schools, which give the appearance of wind disturbance or a tide rip on the surface, are seldom seen in this area because of prevailing rough sea conditions. The presence of a school is most often revealed by flocks of sea birds "working" above the fish. Generally speaking, large numbers of birds flying low over the surface of the water and continually diving as if feeding are an indication of fish. An experienced skipjack fisherman is able to distinguish by the activity of the birds whether a school of fish is worth any fishing effort. Moreover, once having located a school, he can usually anticipate the movements and behavior of the fish. The sea birds for which the Hawaiian fishermen are ever on the look out include frigate birds, the Hawaiian and noddy terns, and gannets. In these waters skipjack are very seldom encountered together with schools of porpoise as is common off the coast of Central America.

The Hawaiian technique of fishing for skipjack is somewhat different from that employed by the American and Japanese tuna fishermen. When a school of fish has been located, the boat circles the fish in an attempt to cross in front of the school. As the boat approaches the school, the engine is throttled down, and the captain takes up a position in the stern of the boat, where he maneuvers the boat by means of a tiller. Simultaneously, the spray apparatus is turned on and the chummer begins throwing bait overboard. Using a small dip net, he scatters the chum over the surface of the water a few fish at a time. If the fish are biting and rush in to take the chum, bait is thrown m

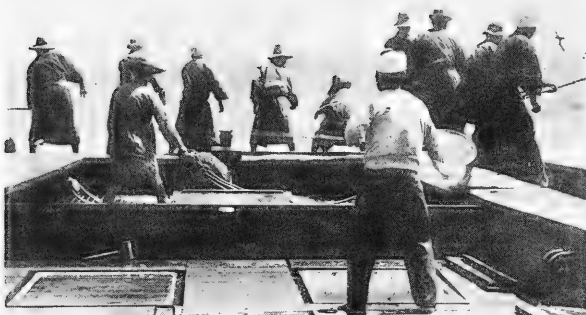


FIGURE 8 - SKIPJACK FISHING. A SCHOOL OF FISH HAS BEEN "CHUMMED" CLOSE TO THE BOAT AND THE FISH ARE JUST COMMENCING TO BITE.

more rapidly in an effort to bring the skipjack up close to the stern of the boat. The fishermen take their fishing positions and move the jigs across the surface in short arcs to simulate living fish. The older and more experienced fishermen station themselves along the stern where fishing is usually best, while younger members of the crew take positions along the gunwales (figure 8). Suddenly the first fish strikes. Each fisherman braces himself for the onrush of fish. The base of the pole rests against a denim pad hung in front of the groin. The left hand grips the pole and the right hand is free. When a fish strikes, the right hand quickly grasps

the base of the pole, and the fisherman leans back and down, utilizing the initial speed of the fish to lift it out of the water and swing it toward the boat. As the fish hurtles through the air, the fisherman catches it under his left arm, and with the pole supported across his right forearm, he removes the hook with his right hand and drops the fish on deck behind him as the jig goes back into the water ready for the next fish. The practice of catching a fish under the arm is a matter of necessity with the local fishermen, since the limited amount of deck space on the sampans prevent flipping the hooked fish aboard. This technique demands the utmost skill and agility on the part of the fisherman, especially when fish are large and there is a heavy sea running.

The fishermen may often change poles during fishing. Generally, the short heavier poles are used when the fishing first begins and the fish are biting continuously, but as the fishing slackens or the larger fish lag behind, the fishermen switch to the longer poles and use the most attractive jigs in their repertory. Because of the difficulty of landing large fish when the long poles are used, the less experienced fishermen gaff the fish for those doing the fishing. The technique by which two or more poles are attached to a single hook is never practiced by the local fishermen; however, the fishermen often assist one another in landing large fish by using the tips of the poles to support the pole bearing a hooked fish.

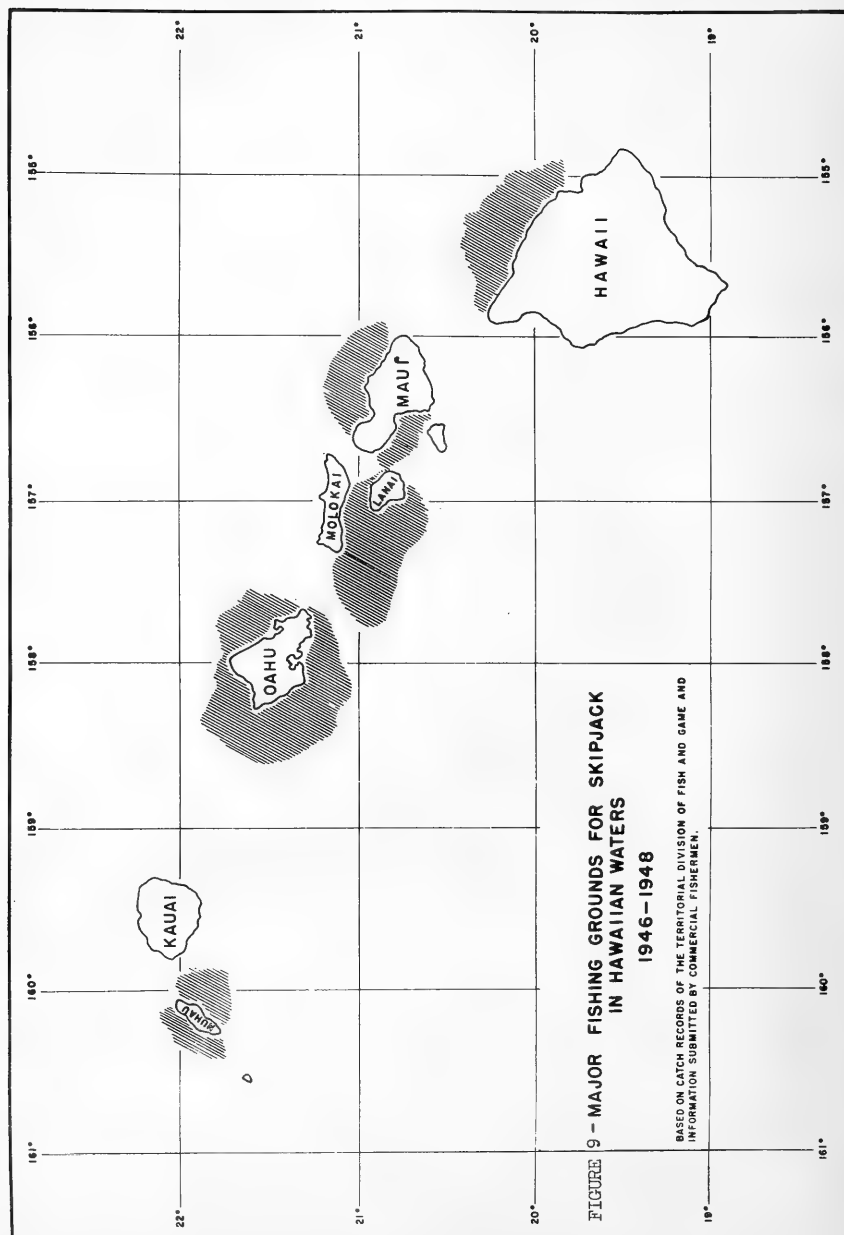
The actual fishing time is usually of relatively short duration. The schools encountered in these waters will stay with the boat for a period varying from a few minutes to half an hour. If the fish suddenly stop biting, and the school is large, a second run may be made on the school; however, if the fish will not bite on the second attempt, the school is usually abandoned. Oftentimes, the schools encountered will not respond to the chum, or the fish may take the live bait readily but will not touch a hook. At such times, the boat moves on in search of another school.

When the last fish has been brought aboard, the catch is stowed in one of the empty bait wells. The deck is scrubbed down, and the boat sets off in search of another school.

FISHING AREAS AND SEASONS

The operations of the Hawaiian skipjack fleet are largely confined to the waters immediately adjacent to the main islands. In the past, lack of proper navigational equipment and adequate refrigeration has limited the extension of the fishery into the more distant offshore waters. It has been only during the 1949 season that several of the boats installed radio direction finders which permitted them to venture farther offshore. Most of the fishing is centered around the island of Oahu, since the bulk of the fleet is based at Honolulu. Moreover, the presence of fish in the surrounding waters and the proximity of the main baiting grounds permit many of the boats to operate on single-day runs out of port. Some of the larger Honolulu boats, however, range as far eastward as the island of Hawaii and as far westward as Kauai and Niihau. The more distant trips usually last from 2 to 3 days, depending on fishing success. Hilo boats generally confine fishing operations to the windward side of Hawaii, while Kawaihae boats fish along the leeward coast. Maui boats generally fish in the waters adjacent to Molokai, Maui, and Lanai. The main fishing grounds are shown in figure 9.

Weather conditions and information obtained from other boats often influence the fishermen's choice of a particular fishing area. Skipjack are not found in uniform abundance throughout the waters surrounding the main islands, consequently, considerable time on occasions may be spent in searching for schools of fish. Most of the boats fish throughout the year except for periodic maintenance lay-ups. The winter



season is slack, however, as compared with the summer fishery. Unfavorable weather conditions often make it necessary for the fleet to suspend fishing operations during this period, especially during the month of December. Furthermore, during the winter the fish are less abundant in Hawaiian waters, and the schools are reportedly smaller than those encountered in the summer fishery. The first appearance of the fish marking the beginning of the summer season usually occurs in May. After increasing rapidly to a maximum in June or July, the catches drop off gradually (See figure 10). Figure 11 illustrates the season of peak catch, with average monthly catches expressed as percentages of the average annual catches for the three-year period ending with 1948.

DISPOSITION OF THE CATCH

Since many of the skipjack boats operate on short runs out of port, the fish are oftentimes landed at the dock within a few hours after they have been caught (figure 12). The chief port of landing for the skipjack fleet is Honolulu. During the summer season, the bulk of the catch is sold to Hawaiian Tuna Packers Ltd. for canning. The plant is located close to the dock where the fish are unloaded and transferred by trucks to the cannery to await processing (figure 13). In addition to the main packing plant, the cannery also maintains a small subsidiary at Hilo where fish are received for shipment to the plant in Honolulu. The price paid to the fishermen by the cannery for the fish is based on the prevailing price of skipjack on the Pacific coast, less a differential approximating shipping costs.

Only a few of the Honolulu boats sell their catches exclusively to fresh market outlets; however, during the winter months the skipjack landings are not sufficient to keep the cannery in operation, and the fish are then handled by the fresh markets. On most of the other islands, the entire catch is absorbed by the fresh market. The prices received by the fishermen for skipjack going to the fresh market fluctuates with the supply; generally, however, the average market price is slightly above the prevailing price paid by the cannery.

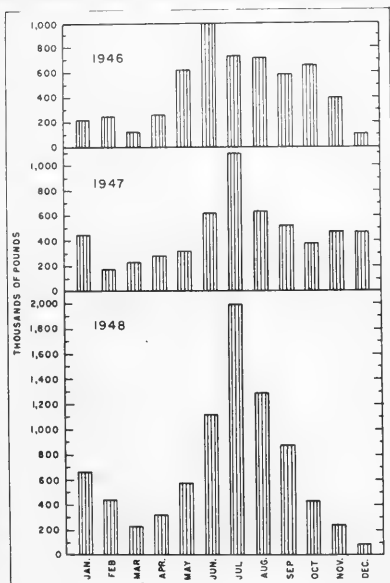


FIGURE 10 - SKIPJACK LANDINGS BY MONTHS IN THE TERRITORY OF HAWAII, 1946-48. (DATA OBTAINED FROM THE CATCH RECORDS OF THE TERRITORIAL DIVISION OF FISH AND GAME.)

FUTURE POSSIBILITIES FOR THE DEVELOPMENT OF THE FISHERY

There seem to exist excellent possibilities for expansion of the skipjack fishery based on the Hawaiian Islands. Intensive research is underway, both by the U. S. Fish and Wildlife Service Pacific Oceanic Fishery Investigations and other agencies, for exploring and developing the tuna resources of the Central Pacific. Data are presently being gathered for studies of the basic biology of the skipjack. In addition, exploratory and experimental fishing is also being conducted with the aims of locating potentially productive areas, developing new gear, and improving existing methods and techniques for catching fish. Concomitant with this work, oceanographi-

cal surveys are being carried on to correlate with the exploratory findings. The results of such research eventually should lead to a more efficient exploitation of local tuna resources and an extension of the fishery into adjacent geographical regions. The Line Islands and the expanse of islands and shallow-water banks extending northwestward from Niihau perhaps offer the most promising potential fishing grounds for immediate expansion.

As mentioned previously, the existing bait supply in the Hawaiian Islands is limited. Studies are now in progress to determine the factors in the physiology of the bait species related to handling and transporting them more effectively. In-

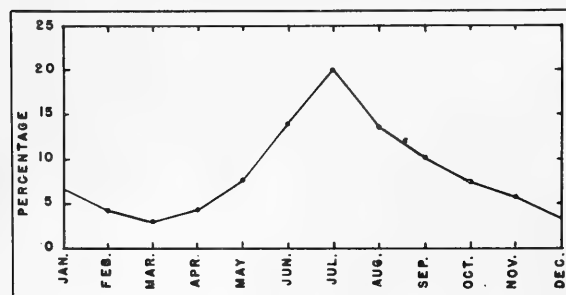


FIGURE 11 - LANDINGS OF SKIPJACK IN MONTHLY PERCENTAGES FOR THE 3-YEAR PERIOD ENDING 1948.

vestigations with regard to the condition of the local bait fishery for nehu are being conducted by the University of Hawaii and the Territorial Division of Fish and Game for the purpose of determining the maximum yield that can be harvested without causing a serious decrease in the local populations. Hope for future expansion also lies in the further extension of bait fishing in areas which have not been fished intensively in recent years, such as Pearl Harbor and others previously noted. There are also several areas lying to the northwest of the main island group which have not as yet been extensively exploited commercially and which offer possibilities for an increased bait supply.

The local fishing fleet is continually incorporating modern mechanical equipment and methods which enable the vessels to venture farther offshore to exploit oceanic fish stocks which otherwise might not be available to the fishery. The installation of pump-circulation systems in the bait wells of several of the boats minimize the bait requirements (through reduced mortality rates of bait carried in the wells) and thus lead to an increase in profitable fishing time, and also allow larger loads of bait to be carried. Radio direction finders are becoming standard equipment on an increasing number of boats. Hence, such vessels are no longer limited to coastal waters because of inadequate navigational aids. However, other modifications on the present boats would be necessary before their cruising range could be economically increased to any great extent. For instance, modern refrigeration adequate for holding a catch during extended fishing trips would have to be provided. Further improvement of living accommodations aboard the boats would provide greater comfort to the fishermen at sea.



FIGURE 12 - A SKIPJACK CATCH WAITING TO BE UNLOADED AT KEWALO BASIN, HONOLULU.

There are other considerations which must not be overlooked and which directly affect the development of the fishery. First, should there be a substantial increase in production, adequate facilities for handling the catch must be provided. The demands of the fresh market constitute only a small portion of the total annual skipjack landings, therefore, the greater part of the catch must be processed. In this respect, plans for another tuna canning plant to be located on the island of Kauai have already been formulated, and it is planned that it will be in operation by 1951. Second, there is at present a shortage of fishermen well trained in local fishing methods, hence, an increased demand for experienced personnel to man additional fishing boats would be even more critical unless additional fishermen could be trained, or the fishing methods were sufficiently modified to attract experienced fishermen from the U. S. mainland. Third, it is likely that problems would arise with regard to financing any new fishery enterprises. For example, financing the ownership and operation of a vessel by an individual or group is often difficult without substantial backing from an outside source.

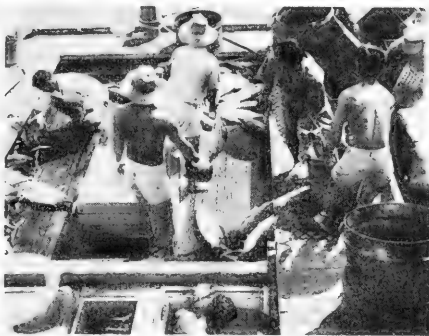


FIGURE 13 - SKIPJACK BEING UNLOADED FROM A SAMPAN FOR TRANSFER TO THE CANNERY, KEWALO BASIN, HONOLULU.

There are, of course, many other factors than those mentioned above to be considered that will effect the future development of the fishery. It may be pointed out, however, that the general feeling among local interests is that the fishing industry, and particularly the skipjack fishery, offers opportunities for the Territory under favorable marketing conditions on the mainland where the major part of the Hawaiian tuna pack must be sold.

LITERATURE CITED

- ANONYMOUS
1936. INVESTIGATIONS ON FISHING IN FOREIGN COUNTRIES (KAIGAI SUISAN CHOSA). (TEXT IN JAPANESE). DEPT. AGRI., TOKYO, BUR. FISH., PP. 311-19.
- BECKLEY, EMMA W.
1883. HAWAIIAN FISHERIES AND METHODS OF FISHING. ADVERTISER STEAM PRINT, PP. 1-21.
- BREDER, C. M.
1929. FIELD BOOK OF MARINE FISHES OF THE ATLANTIC COAST FROM LABRADOR TO TEXAS. G. P. PUTNAM'S SONS, N. Y., 332 P.
- COBB, JOHN N.
1903. THE COMMERCIAL FISHERIES OF THE HAWAIIAN ISLANDS. BUL. U. S. FISH. COMM., VOL. 23, PT. 2, PP. 717-65.
- DAY, FRANCIS
1875-78. THE FISHES OF INDIA. LONDON, 778 P., 198 PLS.
- FOWLER, HENRY W.
1944. RESULTS OF THE FIFTH GEORGE VANDERBILT EXPEDITION. ACAD. NAT. SCI., MONOGR. NO. 6, PP. 349, 373-74, 498.
- GODSIL, H. C. AND R. D. BYERS
1944. A SYSTEMATIC STUDY OF THE PACIFIC TUNAS. CALIF. DIV. FISH AND GAME, FISH BUL. 60, PP. 1-131.
- GUNTHER, ALBERT
1860. CATALOGUE OF FISHES IN THE BRITISH MUSEUM. LONDON, VOL. 2, PP. 1-548.
- HATAI, SHINKISHI ET AL.
1941. A SYMPOSIUM ON THE INVESTIGATION OF TUNA AND SKIPJACK SPawning GROUNDS. SOUTH SEA SCI. (KAGAKU NANTO), VOL. 4, NO. 1, PP. 64-75.
- HERRE, ALBERT
1940. DISTRIBUTION OF THE MACKEREL-LIKE FISHES IN THE WESTERN PACIFIC NORTH OF THE EQUATOR. PROC. 6TH PAC. SCI. CONG., VOL. 3, PP. 211-15.
- HORNELL, JAMES
1936. THE CANOES OF POLYNESIA, FIJI, AND MICRONESIA: CANOES OF OCEANIA BY A. C. HADDON AND J. HORNELL. B. P. BISHOP MUS., VOL. 1, SPEC. PUB. 27, PP. 1-454.
- IMAMURA, YUTAKA
1949. THE SKIPJACK FISHERY: THE TEXT OF THE FISHERY (SUISAN KOZA), FISHING SEC., VOL. 6, PP. 17-94.
- KISHINOUE, KAMAKICHI
1923. CONTRIBUTIONS TO THE COMPARATIVE STUDY OF THE SO-CALLED SCOMBROID FISHES. JOUR. COLL. AGRI., TOKYO IMP. UNIV., VOL. 6, NO. 3, PP. 293-475, FIGS. A-Z, PLS. 13-33.
1926. AN OUTLINE OF STUDIES OF THE PLECOSTEI (TUNA AND SKIPJACK) IN 1925. SUISAN GAKKAI HO, VOL. 4, NO. 3, PP. 125-37.
- LANMONTE, FRANCESCA
1945. NORTH AMERICAN GAME FISHES. DOUBLEDAY DORAN, N. Y. 202 P., 73 PLS.

MATSUI, KIZO
1942. ON THE GONADS OF SKIPJACK FROM PALAO WATERS.
SOUTH SEA SCI. (KAGAKU NANTO), VOL. 5, NO. 1,
PP. 117-22.

ROEDEL, PHIL M.
1948. COMMON MARINE FISHES OF CALIFORNIA. CALIF. DIV.
FISH AND GAME, FISH BUL., 68, PP. 3-142.

SERVENTY, D. L.
1941. THE AUSTRALIAN TUNAS. COUNCIL SCI. IND. RES.,
PAMPH. 104, 48 P., 4 PLS.

SCHAEFER, MILNER G. AND J. C. MARR
1948. CONTRIBUTIONS TO THE BIOLOGY OF THE PACIFIC
TUNAS. U. S. FISH AND WILDLIFE SERVICE,
FISH. BUL. 44, PP. 187-206.

SHAPIRO, SIDNEY
1948. THE JAPANESE TUNA FISHERIES. U.S. FISH AND
WILDLIFE SERVICE, F. L. 297, PP. 5-60.

SUYEHIRO, YASUO
1938. THE STUDY OF FINDING THE REASONS WHY BONITO DOES
NOT TAKE TO THE ANGLING-BAITS (TEXT IN JAPAN-
ESE WITH ENGLISH ABSTRACT). JOUR. IMP. FISH
EXP. STA., NO. 9, PP. 85-101.



ALBACORE TUNA EXPLORATION IN ALASKAN AND ADJACENT WATERS--1949

Albacore, the white-meat tuna, has been fished commercially in California waters for many years, but only in the past decade has the industry been established in Oregon and Washington. In 1948, the commercial range was extended to waters off the Canadian coast. The 1949 exploration of the U. S. Fish and Wildlife Service's exploratory vessel Oregon was undertaken with the view of studying albacore movements in the northeastern Pacific and the possibility of establishing a tuna fishery in Alaskan waters.

Albacore were taken by the Oregon on trolled jigs during August and September in scattered areas from the Washington coast to the Welker Seamount, 300 miles offshore from Dixon Entrance. However, large schools, such as were present off the British Columbia coast in 1948, were not found in 1949, indicating possible annual variation in migration pattern.

Surface water temperatures were correlated with the appearance of albacore; fish were caught in waters as cold as 56.8° F., but best fishing was found at temperatures between 58° and 61° F.

Stomach analysis indicated that in the northeastern Pacific tuna feed almost solely on plankton and small fish. Euphausiids ("red feed") and small rockfish constituted the bulk of their diet. Methods of locating concentrations of these food organisms would probably be of benefit to the fishery.

From the experiences of 1949, it appears that obtaining live bait (anchovies, pilchards, etc.) is a very serious problem for the bait boats, and may at times prove even more difficult than finding the albacore. Although carrying live bait on two occasions, the Oregon did not locate large schools of tuna affording opportunity for its use.

--Fishery Leaflet 376

EFFECT OF FLUCTUATING STORAGE TEMPERATURES ON QUALITY OF FROZEN FISH FILLETS

By S. R. Pottinger *

ABSTRACT

VERY LITTLE DEFINITE INFORMATION OR ACTUAL DATA CAN BE FOUND IN SUPPORT OF THE MUCH-REPEATED STATEMENT THAT FLUCTUATING TEMPERATURES HARM THE QUALITY OF FROZEN FOODS. BECAUSE OF THE NEED FOR THIS TYPE OF INFORMATION FOR FISH, A STUDY OF THE EFFECT OF FLUCTUATING STORAGE TEMPERATURES ON FISH QUALITY WAS INITIATED AT THE COLLEGE PARK (MARYLAND) FISHERY TECHNOLOGICAL LABORATORY OF THE U. S. FISH AND WILDLIFE SERVICE.

A TOTAL OF APPROXIMATELY 500 SAMPLES OF CELLOPHANE-WRAPPED STRIPED BASS AND BOSTON MACKEREL FILLETS WERE HELD AT CONSTANT TEMPERATURES OF -10° , 0° , AND 15° F., AND AT TEMPERATURES FLUCTUATING BETWEEN -10° AND 0° , AND BETWEEN 0° AND 15° F. AT CYCLES OF ONE, THREE, AND FOUR DAYS FOR VARIOUS LOTS.

THE STRIPED BASS FILLETS HELD AT -10° F. AND 0° F. REMAINED IN A SATISFACTORY CONDITION FOR 8 TO 9 MONTHS, WHILE 3 MONTHS WAS THE LIMIT OF THEIR STORAGE LIFE AT 15° F. THE BOSTON MACKEREL FILLETS HAD A STORAGE LIFE OF ABOUT TWO MONTHS AT 15° F., AND APPROXIMATELY TWICE THAT TIME AT -10° F. AND 0° F.

AS BASED ON PALATABILITY SCORES, VOLATILE ACID NUMBERS, "DRIP" DETERMINATIONS, AND VISUAL EXAMINATIONS, THERE WAS NO ADVERSE EFFECT ON THE QUALITY OF FROZEN FISH FILLETS DUE TO FLUCTUATING STORAGE TEMPERATURES IN THE TEMPERATURE RANGES COVERED IN THESE EXPERIMENTS. THE AVERAGE STORAGE TEMPERATURE ENCOUNTERED DURING THE FLUCTUATIONS WOULD SEEM MORE LIKELY TO BE THE DECIDING FACTOR.

- - - - -

INTRODUCTION

In many articles dealing with the storage of frozen foods, considerable emphasis has been placed on the need for keeping foods at a constant storage temperature at all times. That such a condition is very difficult and often impossible to satisfy is quite obvious when some of the problems connected with the maintenance of constant temperatures are considered. Some of the causes of fluctuations are: using storage rooms for freezing; overloading of the refrigeration equipment; power failure; equipment breakdowns; improper setting of control devices; transferring frozen products from one storage room to another; and transporting frozen products from producer to consumer. Considering the number of opportunities for the temperature to change, it is quite possible that some products may undergo a series of fluctuations in temperature before reaching the ultimate consumer.

Very little definite information or actual data can be found in support of the much-repeated statement that fluctuating temperatures harm the quality of frozen foods. In many cases, the statement is undoubtedly based on hearsay and has been passed along for many years. Very often, the statement is based on a theoretical estimation of the effect of temperature changes on the increase and decrease in vapor pressure and its effect on the water transfer in the stored product. This would supposedly affect the rate of desiccation and size of ice crystals.

* CHEMIST, FISHERY TECHNOLOGICAL LABORATORY, BRANCH OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, COLLEGE PARK, MD.

Joslyn (1932), Finnegan (1938), Plagge (1938), Guest (1939) and Christensen (1945) stressed the need for constant storage temperatures but did not give data. Taylor (1932) stated that the maintenance of constant storage temperatures is highly important. But he further qualified his statement by noting that conclusions are commonly drawn from readings of fluctuating air temperatures in the storage space and that the only temperature fluctuation that has any effect on fish is that in the fish itself. He further mentioned that a considerable period of time is required to change the temperature of the mass of fish in storage, but no data are given. On the other hand, Woodroof and Shelor (1947) gave data showing that more rapid deterioration of fruits occurred at a storage temperature fluctuating from 0° to 10° F., than at a constant temperature of 10° F.

Shrewsbury, et al., (1942) presented considerable data indicating that temperature fluctuations between 4.5° and -15° F. caused no adverse changes in pork. Hustrulid and Winter (1943), working with fruits, vegetables, and meats, found that a constant storage temperature was not important if the product was properly selected, prepared, and packaged, and if the storage temperature was below 5° F. Gortner, et al., (1948) suggested that their data indicated that the quality of frozen foods was not seriously impaired by temperature fluctuation, with the possible exception of that due to a desiccating effect. Hustrulid, Winter, and Noble (1949) studied the effect of temperature fluctuations in the range 0° to -10° F. on the quality of beans, strawberries, beef, and pork. There was no evidence that growth of ice crystals caused greater cell destruction due to fluctuating temperature. These workers believed that the effects of a fluctuating storage temperature, per se, on frozen foods were not important below 0° F. for color, flavor, texture, or nutritive value. The need for good packaging materials was stressed, however.

As with other products, it has been a generally-accepted and frequently-repeated statement that fluctuating freezer storage temperatures are detrimental to the quality of frozen fish. There are, however, very few, if any, data in the literature to support this idea. Because of the need for information of this type for fish, a study of the effect of fluctuating storage temperatures on the quality of fish was initiated at the College Park (Maryland) Fishery Technological Laboratory of the U. S. Fish and Wildlife Service.

PREPARATION OF SAMPLES

Two varieties of fish were used in the tests. Striped bass or rockfish (Roccus saxatilis) was chosen as being representative of a non-fatty type of fish. Since the fat in fish is very susceptible to oxidation and often undergoes rapid changes during frozen storage, a fatty type of fish was included and was represented by Boston mackerel (Scomber scombrus).

The striped bass were obtained from a nearby packing house and had been out of the water less than one-half day when brought to the laboratory. The Boston mackerel were taken directly from the boat in Boston and shipped immediately by railway express, and the shipment arrived at the College Park laboratory on the following day. Both varieties of fish were filleted upon arrival at the laboratory. The fillets were washed thoroughly in tap water and allowed to drain. They were then placed in a chilled room with a temperature of 35° F. Wrapping of the fillets was started as soon as possible, and only a few fillets were taken from the chilled room at a time.

Fillets of each variety of fish taken at random were wrapped in pairs in moisture-vaporproof cellophane. They were weighed before and after wrapping. A tightly

applied druggist's wrap was used on half of each lot of fillets. The other half of each lot was wrapped so as to permit large air spaces to remain in the packages in order to determine whether fluctuations in temperature caused increased moisture loss and cavity ice or frost formation within the package. All packages were immediately placed individually on freezer plates in a room at a temperature of -15° F. and held there for approximately two days.

An equal number of packages of both varieties of fish, in tight and loose wraps, were placed in storage at the following temperatures: -10° ; 0° ; fluctuating between 0° and -10° ; 15° ; and fluctuating between 0° and 15° F. As planned originally, fluctuations in temperature were to occur every four days by moving the fillets from the one temperature to the other. After the first month of storage, it was apparent that the mackerel would have a relatively short storage life. Therefore, it was decided to subject various mackerel samples to additional fluctuations in temperature in order not to discard a large number of unused samples because of poor quality; consequently, fluctuations at three-day and one-day intervals were also maintained as far as possible. But the striped bass fillets were subjected to the four-day cycle only.

A sufficient number of packages were prepared to make the required number of examinations at monthly intervals. Over the entire storage life of the products, two and, in a number of cases, three examinations each on different packages were made.

EXAMINATION OF SAMPLES

At monthly intervals, two separate packages each of striped bass and mackerel (in a number of instances three separate packages of mackerel) fillets were removed from storage and weighed before and after removing the wrapper. Each package contained two complete fillets. After noting the condition of the frozen fillets, portions from each fillet were taken for palatability tests, determination of "drip" or quantity of liquid that separates upon thawing, and at less frequent intervals, determination of volatile acid numbers. The last is a chemical test sometimes used as an indication of relative freshness of fish. Taste characteristics in particular were noted in determining quality since flavor is a deciding factor as to whether a product is in salable condition.

Palatability tests were made by a panel consisting of 4 or 5 members of the laboratory staff who were experienced in this type of test. Scores were based on appearance, flavor, and texture of the product. A sample receiving a weighted score below 85 was considered unacceptable. In preparing the fillets for the test, they were thawed at room temperature, brushed lightly with vegetable oil, and baked in a preheated oven at a temperature of 500° F. for 10 to 12 minutes, depending on the size and thickness of the fillets.

The quantity of "drip" which formed upon thawing of the fillets was determined as follows:

The frozen fillet was weighed and then placed upon a coarse-meshed wire screen inside of a rectangular-shaped glass dish. The screen was raised slightly above the bottom of the dish so as to permit drainage of the fillet. A sheet of moisture-vaporproof celophane was placed over the top of the dish and taped in place in order to retard loss of moisture from the fillet. After approximately four and one-half hours at room temperature, the thawed fillet was removed, blotted lightly with a paper towel and weighed. The loss in weight represented the "drip."

Volatile acid numbers were determined by the method of Hillig and Clark (1938).

RESULTS

The discussion of the results will be limited to those for the tight-fitting packages, unless otherwise noted, since loose-fitting packages are never to be recommended for use in frozen food storage and were included in these tests only in an attempt to show differences in weight loss and cavity ice formation which might occur as a result of fluctuating storage temperatures.

Table 1 - Average of Two Palatability Scores for Tightly-Wrapped and Loosely-Wrapped Packages of Striped Bass Fillets Stored at Various Temperatures

Storage Temperature	Type of Wrap	Palatability Score/ --Storage Period in Months--									
		1	2	3	4	5	6	7	8	9	10
-10° F.	Tight	99	100	98	90	91	89	90	88	88	82
	Loose	98	100	95	88	84	86	81	82	81	72
Fluctuating between -10° F. and 0° F. at four-day intervals	Tight	98	100	97	89	90	89	89	88	88	83
	Loose	95	100	95	89	87	87	83	83	80	72
0° F.	Tight	99	100	98	87	89	87	87	87	84	82
	Loose	98	100	97	86	84	85	78	82	75	75
Fluctuating between 15° F. and 0° F. at four-day intervals	Tight	99	100	97	87	83	81	76	74	74	-
	Loose	98	100	96	79	81	80	80	80	-	-
15° F.	Tight	100	100	94	84	81	81	72	71	69	-
	Loose	95	99	95	77	77	77	77	71	-	-

1/THE PALATABILITY SCORE WAS CALCULATED AS FOLLOWS: THE FILLET WAS SCORED ON THE BASIS OF 1 TO 10 POINTS EACH FOR APPEARANCE, FLAVOR, AND TEXTURE. THE FLAVOR SCORE WAS DOUBLED IN ORDER TO GIVE ADDITIONAL WEIGHT TO THIS FACTOR. THE MEAN AS A PERCENT OF THESE SCORES RESULTED IN THE PALATABILITY SCORE. A SAMPLE WITH A SCORE BELOW 85 WAS CONSIDERED UN-ACCEPTABLE.

The average palatability scores for the striped bass fillets are given in table 1. The tightly-wrapped products held at constant temperatures of -10° and 0° F., and at temperatures fluctuating between these two points received satisfactory and nearly identical scores at the end of eight months of storage. After nine months of storage, the samples stored under this fluctuating temperature range received the same score as those held at a constant temperature of -10° F. At this time, the samples held at a constant temperature of 0° F. were not considered satisfactory.

All of these striped bass samples, in the raw state, were generally satisfactory in appearance until after the tenth month of storage. Slight, though almost negligible, surface desiccation occurred at that time on the samples in all three lots. A slight fishy odor was noted at the examination after eight months, and this increased somewhat after each succeeding month. The color was not as bright as that of fresh fillets but was commercially satisfactory.

After only four months of storage at 15° F., the striped bass fillets failed to receive an acceptable score. At the same time, those undergoing temperature fluctuations between 15° and 0° F. were still acceptable. No noticeable surface desiccation had occurred in either lot at this time, and the odor and appearance of the uncooked fillets were satisfactory. The early low palatability scores noted were attributable mainly to adverse changes in flavor and texture.

Table 2 - Average of Two (or Three) Palatability Scores for Tightly-Wrapped and Loosely-wrapped Packages of Boston Mackerel Fillets Stored at Various Temperatures

Storage Temperature	Type of Wrap	Palatability Score				
		--Storage Period in Months--				
		1	2	3	4	5
Constant:						
-10° F.	Tight	95	96	92	89	86
	Loose	98	95	89	86	78
0° F.	Tight	97	96	91	84	81
	Loose	98	96	89	81	76
15° F.	Tight	94	89	71	55	-
	Loose	96	90	67	60	-
Fluctuating at four-day intervals:						
Between -10° and 0° F.	Tight	97	97	93	84	-
	Loose	97	96	87	80	-
Between 0° and 15° F.	Tight	98	95	71	73	-
	Loose	95	92	66	66	-
Fluctuating at three-day intervals:						
Between -10° and 0° F.	Tight	1/	97	91	88	84
	Loose	1/	93	91	85	80
Between 0° and 15° F.	Tight	1/	91	75	67	-
	Loose	1/	91	76	59	-
Fluctuating at one-day intervals:						
Between -10° and 0° F.	Tight	1/	97	90	85	85
	Loose	1/	93	88	86	78
Between 0° and 15° F.	Tight	1/	90	74	51	-
	Loose	1/	84	78	51	-

1/DURING THE FIRST MONTH OF STORAGE, THESE SAMPLES WERE SUBJECTED TO TEMPERATURE FLUCTUATIONS AT FOUR-DAY INTERVALS. THE PALATABILITY SCORES FOR THIS PERIOD ARE GIVEN IN THE GROUP "FLUCTUATING AT FOUR-DAY INTERVALS." (SEE NOTE TO TABLE 1 FOR METHOD USED IN CALCULATING PALATABILITY SCORE).

The palatability scores for the Boston mackerel fillets are given in table 2. On the basis of these scores, there was no apparent deterioration of quality due to fluctuating storage temperatures. The scores for the samples undergoing temperature changes between -10° and 0° F., irrespective of the rate of fluctuation, did not differ greatly from those for samples held at a constant temperature of -10° and a constant temperature of 0° F. In the case of the samples subjected to temperature fluctuations between 0° and 15° F., the scores during the first and second months of storage do not signify any greater deterioration in quality than those for the fillets held at a constant temperature of 15° F. This is also substantially true for the third and fourth months, although the scores at this time were too low to be acceptable.

In regard to the condition of the mackerel fillets prior to being cooked, those held at -10° F. had only a slightly rancid odor at the end of the five-month storage period. However, a slight fishy odor became apparent in some samples at the end of two months of storage and became stronger as the storage period progressed. Slight darkening of the flesh occurred after the third month. The color was not too attractive after that time. No "rusting" (extreme discoloration of the fat due to oxidation) was apparent in any of the samples.

Some of the mackerel fillets held at 0° F. had a slightly rancid odor at the examination after the third month and some darkening in color had occurred, though no "rusting" was apparent. This was true also, in general, for the fillets undergoing fluctuations in temperature between -10° and 0° F.

The fillets held at 15° and at temperatures fluctuating between 0° and 15° F. were slightly rancid after the second month of storage and were showing signs of

a yellow discoloration. After further storage, the rancidity became very pronounced and extreme "rusting" and discoloration occurred.

On the basis of these tests, mackerel fillets appeared to have a storage life of about two months at 15° F. and approximately twice this life at the lower temperatures included in the tests.

Volatile acid numbers, a chemical index used to some extent for expressing relative freshness of fish on a numerical basis, were determined at intervals for both varieties of fillets. These values increase as freshness decreases. Table 3 shows relative values for the different lots after storage for various periods. Although the results cannot be considered statistically significant, they are interesting since they roughly follow the trend shown by the palatability scores. The volatile acid numbers for the samples subjected to fluctuating temperatures generally fall between the numbers for the corresponding samples that were held at a constant storage temperature. No adverse effect due to fluctuating temperatures is apparent. Initial values were not obtained.

The quantity of "drip" occurring upon thawing of both varieties of fillets (tables 4 and 5) remained quite small during the entire course of the tests. A slight increase occurred after a few months of storage for the striped bass fillets but was still too small to be of much consequence. Almost negligible changes in the amount of "drip" from the mackerel fillets occurred during storage. Fluctuating storage temperatures appeared to have very little effect on the amount of "drip," except for possibly a few of the striped bass samples (table 4).

Table 3 - Volatile Acid Numbers for Tightly-Wrapped Packages of Striped Bass and Boston Mackerel Fillets Stored at Various Temperatures

Storage Temperature	Volatile Acid Number				
	Boston	Striped Bass			
	Mackerel Fillets	Fillets			
	... Storage Period in Months ...				
	4	4	6	8	10
-10° F.	6.4	3.4	4.8	5.0	6.6
Fluctuating between -10° and 0° F. at four-day intervals	6.4	3.8	5.2	5.6	7.0
0° F.	7.6	4.0	5.2	6.0	7.2
Fluctuating between 15° and 0° F. at four-day intervals	9.2	4.0	4.8	5.8	7.4
15° F.	10.4	4.0	5.2	6.6	7.8

Table 4 - Quantity of "Drip" in Percent for Tightly-Wrapped and Loosely-Wrapped Packages of Striped Bass Fillets Stored at Various Temperatures

Storage Temperature	Type of Wrap	"Drip" in Percent									
		Storage Period in Months									
		1	2	3	4	5	6	7	8	9	10
-10° F.	Tight	1.6	1.8	1.6	1.9	2.1	2.2	2.4	2.0	2.3	2.0
	Loose	1.3	1.3	1.5	1.4	1.7	1.6	2.0	2.1	1.9	2.2
Fluctuating between -10° and 0° F. at four-day intervals	Tight	1.2	1.6	1.6	2.3	2.1	2.4	2.6	2.8	2.4	2.2
	Loose	1.4	1.8	1.8	2.0	1.9	2.4	2.9	2.8	2.5	2.2
0° F.	Tight	1.6	1.5	1.6	1.9	2.2	2.5	2.2	2.1	2.0	1.8
	Loose	1.4	1.8	1.7	1.8	1.7	2.3	2.5	2.5	2.0	2.1
Fluctuating between 15° and 0° F. at four-day intervals	Tight	1.3	1.4	1.5	2.6	2.4	2.6	2.4	3.0	3.2	-
	Loose	1.6	1.9	1.6	1.9	2.6	2.2	2.3	2.7	2.3	-
15° F.	Tight	1.3	1.6	1.7	2.0	2.7	2.4	2.7	2.3	2.0	-
	Loose	1.2	2.0	1.7	1.8	2.6	2.3	2.2	1.6	1.9	-

Table 5 - Quantity of "Drip" in Percent for Tightly-Wrapped and Loosely-Wrapped Packages of Boston Mackerel Fillets Stored at Various Temperatures

Storage Temperature	Type of Wrap	"Drip" in Percent				
		Storage Period in Months				
Constant:		1	2	3	4	5
-10° F.	Tight	3.1	3.0	3.1	3.3	3.1
0° F.	Loose	2.4	3.0	3.2	3.3	3.5
	Tight	3.3	3.1	3.2	3.2	3.3
15° F.	Loose	2.9	3.1	3.5	3.4	3.7
	Tight	3.0	2.9	3.2	3.5	-
Loose		3.4	2.9	3.2	3.4	-
<u>Fluctuating at four-day intervals:</u>						
Between -10° and 0° F.	Tight	2.9	2.7	3.4	3.7	-
	Loose	2.9	3.1	3.1	3.3	-
Between 0° and 15° F.	Tight	3.1	3.0	3.1	3.5	-
	Loose	3.2	3.3	2.8	3.2	-
<u>Fluctuating at three-day intervals:</u>						
Between -10° and 0° F.	Tight	1/	3.1	3.3	3.8	3.3
	Loose	1/	3.2	3.5	3.7	4.4
Between 0° and 15° F.	Tight	1/	3.4	3.9	3.8	-
	Loose	1/	3.7	3.6	3.8	-
<u>Fluctuating at one-day intervals:</u>						
Between -10° and 0° F.	Tight	1/	2.6	2.9	3.0	3.0
	Loose	1/	2.8	2.9	3.2	3.2
Between 0° and 15° F.	Tight	1/	2.6	3.2	3.3	-
	Loose	1/	2.9	3.1	3.3	-
1/DURING THE FIRST MONTH OF STORAGE, THESE SAMPLES WERE SUBJECTED TO TEMPERATURE FLUCTUATIONS AT FOUR-DAY INTERVALS. THE PERCENTAGE OF DRIP FOR THIS PERIOD IS GIVEN IN THE GROUP FLUCTUATING AT FOUR-DAY INTERVALS.						

Average weight losses for the tightly-wrapped samples remained quite small. Slight increases in weight loss occurred with some of the lots undergoing temperature fluctuations but were still too small to be of any particular significance.

As mentioned previously, fillet samples with loose fitting wrappers were prepared for the tests to permit cavity ice or frost to form in an attempt to measure the desiccating effect due to storage at the different constant temperatures and especially at temperatures which fluctuated. The difference in weight due to the removal of the cavity ice was taken as the measure of the amount of desiccation that occurred. However, there was such a wide variation between amounts of ice found in individual packages and in fact between groups as a whole that no particular relationship or trend was apparent.

One peculiarity was noticed in connection with a number of the tightly-wrapped samples held at 15° F. Some of the mackerel fillets, after only two months of storage, and the striped bass fillets, after six months of storage, showed considerable surface desiccation. This increased as the storage period progressed. Though not as bad, it occurred to some extent with the fillets subjected to temperature fluctuations between 0° and 15° F. This did not happen with the samples held at the other lower temperatures. Weight losses of the affected samples were slightly higher when this occurred. Apparently the cellophane offered less resistance to moisture-vapor transmission at the higher temperatures, though why this occurred sooner with the mackerel fillets is not known.

DISCUSSION AND CONCLUSIONS

The effect of temperature on the storage life of frozen foods has been a subject of considerable controversy. Until quite recently, it was not at all uncommon to find statements in the literature signifying that storage temperatures in the range of 10° to 20° F. were considered satisfactory. Even today, after numerous

investigations have shown otherwise, these higher temperatures of storage are still not held in disfavor by some handlers of frozen foods.

Appreciable differences, due to storage temperatures, were found in the storage life of the fillets used in these tests. The striped bass remained in a satisfactory condition for eight to nine months at -10° F. and 0° F. temperatures. At 15° F., however, the storage life was limited to only three months. For the Boston mackerel, the storage life at 15° F. was only about two months as compared to approximately twice that at -10° F. and 0° F. temperatures.

Though often stressed in connection with frozen food packaging, the need for eliminating air spaces within the package was further brought out by these tests. Localized desiccation was quite evident on the loosely-wrapped fillets after only one month of storage and became extreme after only two months. Rancidity and discoloration occurred much sooner and progressed more rapidly with these samples. The differences in quality due to tight and loose wrapping were also reflected in the palatability scores, though they were not so evident during the first part of the storage period.

The findings regarding the effect of fluctuating storage temperatures on the quality of the frozen fillets are based on storage conditions that are much more severe than would be apt to be encountered commercially except under extreme circumstances. The samples were stored individually on shelves, with free air circulation about each package, and without benefit of protection from mass packaging in a carton. Large temperature fluctuations occurred during an average of every four days for a period of up to 10 months for the striped bass; and at one-, three-, and four-day intervals for the Boston mackerel for at least four months. With the possible exception of those shifted at one-day intervals, there was ample time for the temperature of the samples to become completely adjusted to correspond with that of the storage room in which they were held.

Other workers or writers have sometimes included higher temperatures than those used in tests of this type or even suggested partial thawing of the product in their discussion of the effect of fluctuating temperatures. Although such conditions may be and are at times encountered under commercial handling, it was felt that the temperature in these tests should not exceed 15° F., as an entirely different set of conditions may otherwise be introduced due to increased bacterial activity and other factors aside from temperature effects, as such.

The data obtained in these tests on approximately 500 samples of striped bass and Boston mackerel fillets suggest that fluctuating temperatures, in themselves, do not have an appreciable adverse effect on the quality of frozen fish fillets, at least in the range covered in these experiments. Instead, any readily apparent effect would seem to be more likely related to the average storage temperature encountered during the fluctuations.

LITERATURE CITED

- CHRISTENSEN, PAUL B.
1945. THE WAREHOUSING OF FROZEN FOOD. FOOD FREEZING, VOL. 1, NO. 1, PP. 25, 32, 33.
- FINNEGAN, WM. J.
1938. QUICK FREEZING FOODS. ICE AND REFRIG., VOL. 94, NO. 1, PP. 45-48.
- CORTNER, WILLIS A.; FENTON, FAITH; VOLZ, FRANCES E.; AND GLEIM, ELLA
1948. EFFECT OF FLUCTUATING STORAGE TEMPERATURES ON QUALITY OF FROZEN FOODS. IND. AND ENG. CHEM., VOL. 40, NO. 8, PP. 1423-1426.
- GUEST, W. E.
1939. SOME PROBLEMS IN THE PREPARATION, PROCESSING AND DISTRIBUTION OF FROZEN FOOD PRODUCTS. ICE AND REFRIG., VOL. 96, NO. 4, PP. 339-341.
- GUEST, W. E.
1939. SOME PROBLEMS IN THE PREPARATION, PROCESSING AND DISTRIBUTION OF FROZEN FOOD PRODUCTS. ICE AND REFRIG., VOL. 96, NO. 4, PP. 339-341.
- HILLIG, FRED, AND CLARK, E. P.
1938. A CHEMICAL PROCEDURE FOR EVALUATING SPOILAGE IN CANNED FISH, ESPECIALLY SALMON AND TUNA FISH. J. ASSOC. OFFIC. AGR. CHEMISTS, VOL. 21, NO. 4, PP. 688-695.
- HUSTRULID, ANDREW AND WINTER, J. D.
1943. THE EFFECT OF FLUCTUATING STORAGE TEMPERATURES ON FROZEN FRUITS AND VEGETABLES. AGR. ENG., VOL. 24, NO. 12, P. 416.

HUSTRULID, ANDREW; WINTER, J. D.; AND NOBLE, ISABEL
1949. HOW DO FLUCTUATING STORAGE TEMPERATURES AFFECT
FROZEN FOODS? REFRIG. ENG., VOL. 57, NO. 1,
PP. 38-41.

JOSLYN, M. A.
1932. THE PROBLEM OF PRESERVING ORANGE JUICE BY FREEZ-
ING. IND. AND ENG. CHEM., VOL. 24, NO. 6,
PP. 665-668.

PLAGGE, H. H.
1938. SUGGESTIONS FOR FREEZING AND STORING FRUITS AND
VEGETABLES IN REFRIGERATED LOCKER PLANTS. ICE
AND REFRIG., VOL. 95, NO. 1, PP. 31-36.

SHREWSBURY, C. L.; HORNE, L. W.; BRAUN, W. Q.; JORDAN, RUTH;
MILLIGAN, OPAL; VESTAL, C. M.; AND WEITKAMP, N. E.
1942. CHEMICAL, HISTOLOGICAL AND PALATABILITY CHANGES
IN PORK DURING FREEZING AND STORAGE IN THE
FROZEN STATE. PURDUE UNIV. AGR. EXP. STA.
BULL. 472.

TAYLOR, HARDEN F.
1932. ADVANCES IN THE PRESERVATION OF FISH BY FREEZING.
IND. AND ENG. CHEM., VOL. 24, NO. 6, PP. 679-
682.

WOODROOF, J. G.; AND SHELOR, ETHEL
1947. EFFECT OF FREEZING STORAGE ON STRAWBERRIES, BLACK-
BERRIES, RASPBERRIES, AND PEACHES. FOOD FREEZ-
ING, VOL. 2, NO. 4, PP. 206-209, 223.



OYSTERS REMICK

- 36 SHELL OYSTERS*
- 2 CUPS MAYONNAISE
- 4 TABLESPOONS CHILI SAUCE
- 1/4 TEASPOON PAPRIKA
- 6 DROPS TABASCO SAUCE
- 1 TABLESPOON PREPARED MUSTARD
- 1/2 TEASPOON SALT
- 1/8 TEASPOON PEPPER
- 2 TABLESPOONS LEMON JUICE
- 2 TABLESPOONS BUTTER
- 1/2 CUP BREAD CRUMBS
- 4 SLICES BACON

Shuck and drain oysters; place on deep half of shells. Combine mayonnaise and seasonings. Spread mixture over oysters, and sprinkle with buttered crumbs. Place small piece of bacon on top of each oyster. Place oysters on preheated broiler pan about 3 inches from heat, and broil for about 5 minutes or until edges begin to curl. Serves 6.



Fish and Wildlife Service tested recipe. This is one of a series of recipes using fishery products tested and developed in the Service's test kitchens.

* IF SHELL OYSTERS ARE NOT AVAILABLE, 1-1/2 PINTS SELECT SHUCKED OYSTERS MAY BE USED. DRAIN OYSTERS, AND ARRANGE ON A SHALLOW BUTTERED BAKING DISH; SPREAD WITH SEASONINGS, AND COOK AS ABOVE.



January 1951

CANNING: In order to determine any color changes in the oil of canned salmon prepared from frozen fish, preliminary spectrophotometric data were obtained for samples of the free oil from canned pink and sockeye salmon. Composite samples of the free oil from six cans of the control and also the packs stored for 16 weeks were diluted suitably with carbon tetrachloride and the spectral transmission was determined with the Beckman spectrophotometer. No significant differences were found between control and experimental samples for each species examined within the visual spectrum range. Further spectrophotometric tests will be carried out as the regular quality examinations are made. (Ketchikan)

* * *

REFRIGERATION: Preliminary studies on the cooking of shrimp were made utilizing side-stripe shrimp (Pandalopsis dispar) frozen on the exploratory vessel John N. Cobb during the recent shrimp investigation.^{1/} Judging from these preliminary studies the optimum cooking conditions for thawed side-stripe shrimp would be two minutes in 10-percent brine. Excessive shrinkage and salt penetration were found with cooks for long periods. Use of shorter cooks or lower concentrations of salt in the brine resulted in flat flavor. Samples of shrimp from each method of cooking were frozen in vacuum-sealed 1/2-lb. flat cans for storage studies.

* * *

Examination was made of six packs of frozen shrimp prepared aboard the vessel John N. Cobb and stored at 0° F. for 7 weeks. The frozen, cooked meat of coon-stripe shrimp (Pandalus hysinotus) was preferred by the taste panel to that of side-stripe shrimp. There was little difference between the quality of shrimp frozen raw (headless) and that frozen as picked, cooked shrimp. Shrimp that were given additional cooking in a 10-percent salt solution before freezing were definitely tough and had a slight off-flavor. Brine-cooked shrimp which were treated with a 2-percent ascorbic acid solution before freezing were slightly superior to brine-cooked shrimp not treated with ascorbic acid. (Ketchikan)

* * *

Further storage tests were carried out with various species of Pacific Coast rockfish. At the present time, after five months of storage at 0° F., the Sebastes alutus (long-jawed rockfish) and Sebastes marinus (Atlantic Coast rosefish) are still far superior in palatability to the other species, but even these two are beginning to show a definite discoloration and some slight traces of rancidity. The

^{1/}SEE COMMERCIAL FISHERIES REVIEW, JANUARY 1951, pp. 34-5.

Sebastes pinniger (orange rockfish) and Sebastes miniatus (vermilion rockfish) have reached a stage where they are practically inedible. All the other species are at an intermediate stage, having developed considerable discoloration and moderate rancidity. (Seattle)

* * *

NUTRITION: Eight samples of hatchery diets submitted by the Washington State Game Department were assayed for riboflavin, niacin, biotin, and vitamin B₁₂. Work was begun on the assay of 26 diets used by the Service's Leavenworth hatchery. Some experimental work was carried out on methods of extraction on vitamins, particularly vitamin B₁₂, on different types of hatchery feed. It was found that when dealing with relatively dry products, such as fish meal or diets containing considerable quantities of such dry products, autoclaving of the sample was necessary in order to extract all of the vitamins. However, when wet products, such as salmon eggs were used, autoclaving decreased the yield of vitamins extracted. Accordingly, it is necessary to use a different extraction technique for the different types of products being analyzed. (Seattle)

* * *

PRESERVATION: A new series of preservation tests for salmon eggs was begun, using different quantities of sodium bisulfite. Former results were confirmed that 0.5 percent by weight of sodium bisulfite is required to preserve salmon eggs, but greater quantities of the bisulfite do not enhance the keeping quality. Another series was started to delve further into the method of mixing the bisulfite with the eggs. To date, no difference can be noted between samples in which the bisulfite was well mixed with the eggs and those in which the bisulfite was added without special mixing precautions. (Seattle)

* * *

TECHNICAL NOTE NO. 8 -- PROCESSING CANNED KING AND DUNGENESS CRAB MEAT

To determine safe minimum processing times when Dungeness crab meat is packed in half-pound flat cans, heat penetration experiments with inoculated meat of this species of crab have been carried out by the American Can Company and the Hooper Medical Foundation. The latter found 98.2 minutes at 230° F. to be a minimum safe processing time and recommends 105 minutes at this temperature to allow a margin of safety. More recent experiments at the American Can Company resulted in the following recommendations for half-pound flat containers.

<u>Processing temperature</u>	<u>Processing time (minutes)</u>
230° F.	95
240° F.	60
250° F.	45

When the higher processing temperatures are used (240° F. and 250° F.), there is considerable danger of overcooking and scorching the crab meat unless the product is cooled promptly.

The National Cannery Association, basing its conclusions on the American Can Company experiments, recommends 95 minutes at 230° F. for Dungeness crab meat packed in half-pound flat cans. None of the above cited experiments or recommendations have been published.

Some processors of both Dungeness and king crab meat have used shorter processing times than those cited above. Although a shorter processing time may tend to give a more acceptable product from the standpoint of color and texture of the crab meat, a definite danger exists that spoilage will occur. During recent years a number of commercial packs employing these shorter processing times have spoiled with considerable loss to the packers.

No heat penetration studies on inoculated packs have been carried out with king crab. In the absence of such experiments, the Fish and Wildlife Service recommends (in accord with recommendations of National Cannery Association and American Can Company) that the same minimum processing time recommended for Dungeness crab meat (95 minutes at 230° F. for half-pound flat cans) be used for king crab meat.

In several preceding publications (Fishery Leaflet No. 374, Research Report No. 7, and Fishery Market News, May 1942 Supplement) the Fish and Wildlife Service has indicated that shorter processing times than those cited above were satisfactory for Dungeness and king crab meat. Processing times mentioned in these publications were based either upon observations of practices prevailing in the crab-meat canning industry or upon experiments using crab meat that had not been inoculated with bacteria. Inasmuch as the only adequate heat penetration tests for West Coast crab meat are those cited above for Dungeness crab meat, the Fish and Wildlife Service is replacing all former recommendations for processing this species with those given above. Until adequate tests have been made with king crab meat, the recommendations for Dungeness crab meat are tentatively recommended for king crab meat.

—M. E. Stansby, Chemist-in Charge,
Fishery Technological Laboratory,
Seattle, Washington

* * *

TECHNICAL NOTE NO. 9--CHARACTERISTICS OF OIL FROM COLD-RENDERED FUR-SEAL BLUBBER

This report presents data on the characteristics of oil from cold-rendered fur-seal blubber. To provide a sample for analyses, Government biologists on the Pribilof Islands, Alaska, collected in July 1949 about one kilogram of blubber from still warm bodies of several male fur seals (Callorhinus ursinus) 3 years of age. The sample of blubber was placed in a glass jar, frozen, and held in this condition until May of the following year when it was prepared for analyses at the Service's Seattle Technological Laboratory.

Fur-seal blubber is creamy white. It underlies the skin of the body and is thinnest on the head and limbs. Its total weight in the fur-seal body is about 10 pounds for a 3-year-old male.

Characteristics of Oil from Cold-Rendered Fur-Seal (<i>Callorhinus ursinus</i>) Blubber	
	Value
Moisture and other volatile matter (A.O.A.C.*)	Not measurable
Iodine number (A.O.A.C., Hanus)	108
Free fatty acid (A.O.A.C.)	1.58%
Saponification number (A.O.A.C.)	196.3
Specific gravity 25° C./25° C.	0.917
Unsaponifiable matter (A.O.A.C.)	0.64%
Index of refraction at 25° C.	1.4743
Vitamin A content (1894 x E ₃₂₈) ^{1/}	306 units per gram
^{1/} DETERMINED ON THE WHOLE OIL WITHOUT SAPONIFICATION.	
*NOTE: METHODS OF ANALYSIS OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS (A.O.A.C.), ED. 6 (1945), WASHINGTON, D. C.	

The thawed sample was rendered by grinding in a power grinder which liberated the oil. The oil was filtered with suction through paper and then through a sintered glass filter. The oil was allowed to stand overnight at room temperature, whereupon it solidified. It was heated to 75° C. and filtered again through a sintered glass filter. This oil was used for the analyses (see table).

—William Clegg, Chemist,
Fishery Technological Laboratory,
Seattle, Washington



CANNED FISH AND BYPRODUCTS--1949

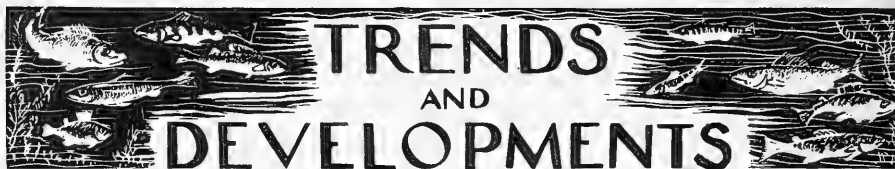
DO YOU KNOW...

That the 1949 pack of tuna and tuna-like fishes, which amounted to 7,290,320 cases (141,700,593 pounds), valued at \$97,710,325, was 252,562 cases greater than the 1948 production. However, cannery received nearly 15 million dollars less for the pack than in the previous year. The 1949 tuna pack was the fifth consecutive record pack of these fish.

The 1949 pack of canned salmon amounted to 5,524,916 standard cases (265,195,968 pounds), valued at \$103,430,980 to the cannery. Compared with 1948 this was an increase of 15 percent in volume, but a decline of 14 percent in value. Although the pack was the second largest in the past six years, it was far less than the 1935-39 average of 7,163,985 cases. Despite the sharp decline in the price of canned salmon in 1949, the pack was the third most valuable in history.

The 1949 pack of California sardines (pilchards) amounted to 3,768,212 standard cases (169,569,540 pounds), valued at \$21,334,825. Compared with the previous year, this was an increase of 42 percent in volume, but a decline of 3 percent in value. While the 1949 pack was the second largest in history, it was 1,238,942 cases less than the record 1941 production.

--Fishery Leaflet 577



TRENDS AND DEVELOPMENTS

Additions to the Fleet of U. S. Fishing Vessels

A total of 52 vessels of 5 net tons and over received their first documents as fishing craft during November 1950—9 less than in November 1949. Florida led with 13 vessels, followed by California with 10, and Louisiana with 8 vessels, the Bureau of Customs reports.

During the first eleven months of 1950, a total of 768 vessels were documented, compared with 939 during the same period in 1949.

Of the vessels receiving their first documents as fishing craft during November, 34 were built during 1949 and 1950. The remainder were built prior to 1949.

Vessels Obtaining Their First Documents as Fishing Craft, November 1950					
Section	November		11 mos. ending with Nov.		Total
	1950	1949	1950	1949	
	Number	Number	Number	Number	Number
New England	1	2	36	32	35
Middle Atlantic	3	1	45	42	44
Chesapeake Bay	7	13	77	75	87
South Atlantic and Gulf	30	27	299	336	369
Pacific Coast	11	10	217	318	327
Great Lakes	-	3	11	38	38
Alaska	-	4	80	92	96
Hawaii	-	1	3	5	5
Unknown	-	-	-	1	1
Total	52	61	768	939	1,002

NOTE: VESSELS HAVE BEEN ASSIGNED TO THE VARIOUS SECTIONS ON THE BASIS OF THEIR HOME PORT.



Federal Purchases of Fishery Products

FRESH AND FROZEN FISH PURCHASES BY DEPARTMENT OF THE ARMY: November 1950: For military feeding of the U. S. Army, Navy, Marine Corps, and Air Force, the Army Quartermaster Corps purchased during November 1950 a total of 2,112,669 pounds of fresh and frozen fishery products (see table). Compared with the previous month, November purchases dropped 18.5 percent in quantity and 16.9 percent in value; but compared with the corresponding month the previous year, November 1950 purchases were greater by 47.8 percent in quantity and 64.5 percent in value.

Purchases of Fresh and Frozen Fishery Products by Department of the Army (November and the First 11 Months, 1950 and 1949)							
Q U A N T I T Y				V A L U E			
November		January-November		November		January-November	
1950	1949	1950	1949	1950	1949	1950	1949
lbs.	lbs.	lbs.	lbs.	\$	\$	\$	\$
2,112,669	1,429,585	16,516,351	16,042,742	872,885	530,647	6,820,841	5,366,264

A comparison of purchases for the first 11 months in 1949 and 1950 shows that in the latter year there was an increase of 2.9 percent in quantity and 27.1 percent in value. This indicates that the Quartermaster Corps was probably paying more for its fresh and frozen fishery products and also buying more expensive varieties during 1950.

December 1950: Fresh and frozen fishery products purchased by the Army Quartermaster Corps during December 1950 for the U. S. Army, Navy, Marine Corps, and Air Force for military feeding amounted to 1,367,195 pounds (valued at \$578,321). Compared with the previous month's purchases, December's purchases dropped 35.3 percent in quantity and 33.7 percent in value. Although December 1950 purchases were 4.5 percent lower in quantity, the value was 16.7 percent greater than in the corresponding month of 1949.

Purchases of Fresh and Frozen Fishery Products by Department of the Army, December 1949 and 1950			
December 1950		December 1949	
Quantity	Value	Quantity	Value
lbs.	\$	lbs.	\$
1,367,195	578,321	1,430,900	495,747

1947-50: Purchases of fresh and frozen fishery products by the Army Quartermaster Corps during 1950 for the U. S. Army, Navy, Marine Corps, and Air Force for military feeding and a small amount for relief feeding amounted to 17,883,546 pounds, valued at \$7,399,162.

Although there has been an increase in the quantity purchased from 1947 through 1950, the rate of increase has dropped (see table). However, purchases for 1950 were 2.3 percent higher than in 1949, 8.4 percent above 1948, and 27.2 percent greater than in 1947.

The value of these purchases in 1950 was 26.2 percent greater than in 1949, 24.2 percent higher as compared with 1948, and 71 percent more than in 1947. The

Purchases of Fresh and Frozen Fishery Products by Department of the Army, 1947-50							
Q U A N T I T Y				V A L U E			
1950	1949	1948	1947	1950	1949	1948	1947
..... (in pounds) (in \$)			
17,883,546	17,473,642	16,495,000	14,058,349	7,399,162	5,862,011	5,957,000	4,327,431

average price per pound paid by the Quartermaster Corps for fresh and frozen fishery products increased from 31 cents in 1947 to 36 cents in 1948, dropped to 33½ cents in 1949, and reached a high of 41 cents in 1950. The high average price for 1950 indicates that the purchases consisted, in some instances, of higher-priced varieties.

With the contemplated increase in the Armed Services during 1951, purchases of fresh and frozen fishery products during the year no doubt will be greater than in 1950.



Fishery Biology Notes

METHOD FOR IMPROVING OYSTER CULTCH EFFICIENCY: To test methods for improving the efficiency of oyster cultch, a 1949 shell planting in the Eastern Chesapeake Bay seed area was worked with a bagless dredge to knock off fouling organisms and clean shell surfaces for setting, according to a December 1950 report from the Service's Chesapeake Shellfish Investigations.

The following shows that the results of this technique increased efficiency:

1949 UNSCOURED SHELLS CAUGHT	80 SPAT PER BUSHEL
1949 SCOURED SHELLS CAUGHT	132 SPAT PER BUSHEL
1950 PLANTED SHELLS CAUGHT	146 SPAT PER BUSHEL

This demonstrates that shells fouled by one year's accumulation of fouling organisms and silt may be cleaned and made more efficient by working with a bagless dredge. It also shows that clean shells from the shucking houses are the best cultch when planted just before the setting period.

* * * * *

SETTING OF AMERICAN OYSTER IN LONG ISLAND SOUND: Setting of the American oyster, *Ostrea virginica*, in Long Island Sound, which began July 22, ended October 9, the latter being the latest date setting was ever recorded there. As in many previous years, there were two distinct setting waves, the first peaking about July 30 and the second September 17. The 1950 season generally was the third poorest since 1937; 1943 and 1948 showing poorer sets, the Service's Shellfish Laboratory at Milford, Conn., reported in December 1950.

The Connecticut oyster industry's estimated losses of more than 5 million dollars as a result of the storm of November 25-26 greatly exceeded damages caused by the 1938 and 1944 hurricanes.

NEW OYSTER LARVAE FOOD ISOLATED: In attempts to isolate and culture sufficient colorless flagellates for oyster larvae food, the Laboratory staff has isolated a new form, tentatively identified as *Rhynchobodo agilis*, and will soon try it as larvae food. In two experiments they found larvae of early stages used some colorless flagellates. In one experiment larvae fed colorless flagellates were significantly larger at 8 days than larvae in control cultures fed green algae.

"O. VIRGINICA" CONSISTS OF DIFFERENT RACES: The staff demonstrated experimentally for the first time the existence of physiologically different races of oysters within the general population of *O. virginica*. Three years ago they brought seed oysters to Milford from different geographical districts. Oysters from Massachusetts or Long Island, the more northern latitudes of the range in which *O. virginica* is found, spawned in Milford Harbor during the 1950 season, discharging all accumulated spawn. The majority of oysters from the warmer regions, New Jersey or Virginia, either did not spawn or discharged by the end of summer only a portion of accumulated spawn. Spawning temperature requirements of northern oysters are somewhat lower than those of southern oysters.

CULTURE OF EUROPEAN OYSTER: The young of the heavy set of European oysters (*Ostrea edulis*) obtained last summer in the experimental tanks at Milford laboratory are kept in Milford Harbor. Some individuals have reached the size of about $1\frac{1}{2}$ inches since setting. Some oysters, set last March in the laboratory and kept since under favorable conditions, now measure 3 inches, a size requiring several years' growth under natural conditions in England.

CULTURE OF QUAHOG, "VENUS MERCENERIA": Numerous healthy cultures of larvae were grown from spawn of clams kept in "cold storage" in Boothbay Harbor waters. A large group of these clams, brought to Milford on October 24 were kept in experimental tanks, where the water temperature was too low to induce spawning. From time to time these have been brought into the laboratory and induced to spawn. Thus a method to provide workers with clam spawn, during the period when it is not available locally, has been provided.

To determine the effect of substrata on growth rate of clam set, the staff placed clams in boxes filled with mud, sand, a mixture of mud and sand, and in gravel and kept them otherwise under identical conditions until the growing season ended. At the beginning of the experiment, the clams, which came from the population cultured from eggs under laboratory conditions, averaged 2.0 mm. in size. Remeasuring showed clams grew best in gravel, then in a mixture of mud and sand, in sand, and finally in mud alone. Survival followed the same pattern.

To determine effect of population density upon growth rate, the staff planted small clams at the rate of 200, 400, 600, and 800 individuals per square foot in a limited area and remeasured them at the end of the growing season. A report on this project will be issued after the data has been analyzed.

STARFISH: The extremely light 1950 starfish (*Asterias forbesi*) set, beginning July 11 and ending August 7, was heaviest on July 22. Like the oyster setting, the starfish set density was heaviest at the depth of 20 feet in the Bridgeport area. Results of the fall survey of distribution and occurrence of starfish on Connecticut oyster beds have shown generally the distribution remains about the same as a year ago but eradication measures have substantially decreased the starfish number.

* * * * *

METHOD DEVELOPED FOR TELLING SHAD'S AGE FROM SCALES: A method has been developed for reading the total age of shad from the scales, reports the Service's Middle and South Atlantic Fishery Investigations. This is a new development, since heretofore only the spawning marks had been read and the age at maturity was not known.

An analysis of the preliminary readings indicates that male shad mature at about 3 years of age and females at 3 or 4 years.

The age distribution data made available by use of the new technique will permit much more accurate estimation of the dynamics of the shad population for use in conservation measures.

SEROLOGICAL TECHNIQUES BEING EXPLORED FOR USE IN FISHERY BIOLOGY: Since one of the factors governing the abundance of fish stocks (marine as well as fresh water) is disease, an approach to this and other baffling problems is being undertaken at the Boothbay Harbor Station in Maine through the use of serological techniques. This approach is the same as that used not only in diagnosing many diseases of warm-blooded

animals, but also in identifying protein as, for instance, distinguishing animal from human blood, according to a December report from the Service's North Atlantic Fishery Investigations. A method for quickly and positively identifying infected individuals, even though no visual evidence of disease is present, may be provided by this approach. It is possible, too, that through this technique, a method of positive identification (to genus and species) of fish (even juveniles previously unidentifiable) can be made. Progress reported to date has been encouraging.



Great Lakes Fishery Investigations

REPORT ON SEA LAMPREY INVESTIGATIONS: In an effort to control the predatory sea lamprey in the Great Lakes, the Fish and Wildlife Service's Branch of Fishery Biology, under a cooperative arrangement with the University of Michigan, is studying effects of various toxicants on larval sea lampreys. The cooperators have tested over 120 chemicals. The majority of the compounds tested kill larval sea lampreys at concentrations as low as 0.125 to 5.0 parts per million.

One of the largest manufacturers of chemicals in the United States has made several thousand chemical compounds available for these tests. Philip J. Sawyer, a Service biologist, developed a rapid method of assaying these chemicals. At present, all available chemical compounds are being screened by the Service's Great Lakes Fishery Investigations to determine those best suited for killing larval lampreys.

The next phase of this program will be to determine whether the most promising chemical compounds can be used in natural waters for controlling the sea lampreys which are causing so much havoc in the Great Lakes.

In December 1950, the Branch of Fishery Biology reported that survey parties had returned to Hammond Bay station from Lake Superior, where they had been evaluating the abundance and reproductive capacity of the sea lamprey in all watersheds of the area. Preliminary analyses of data collected in the inshore waters of Lake Huron indicate the abundance of lake trout to be still declining while lamprey scarring continues to increase. Yellow perch, formerly relatively free from lamprey depredations, now appear with as much as 50 percent of the catch scarred. Laboratory experiments on feeding habits of the sea lamprey are designed to determine frequency and duration of lamprey attacks on prey species, and to measure growth of sea lampreys under varying conditions of available food.

In Carp Lake River, the Cook Research Laboratory has installed an experimental apparatus to determine whether it is possible to electrocute young downstream migrant lampreys. Early observations indicate lampreys are much more difficult to kill at given voltage levels than any species of fish native to that area.

During the fall of 1950, the Great Lakes staff reconstructed and improved existing control devices. They placed a concrete substructure in Carp Creek, Presque Isle County, to test the feasibility of using this type of base for a portable weir which can be installed during seasons of spawning migrations. They altered the Ocqueoc River weir and traps for experiments during the coming spring with electronic control devices. They changed also the location of several other weirs to make them more suitable from either a biological or operational standpoint.

Gulf Exploratory Fishery Program

"OREGON" TO LOCATE GROOVED SHRIMP GROUNDS OFF FLORIDA WEST COAST (Cruise No. 6.): Location of commercial quantities of grooved shrimp north of the present Key West shrimp fishery is the main objective of the Oregon's cruise No. 6. This exploratory fishery vessel of the Service left Pascagoula on January 8 and is scheduled to return on January 30. It will operate off the Florida coast, between Tampa Bay and Dry Tortugas.

The vessel plans to record the conditions under which grooved shrimp in the area are found. A series of 50 trawling stations is planned. Most of these stations will range between 10 and 30 fathoms.

Two types of bottomless trawls have been constructed for use in areas that can not be fished with the conventional nets. These trawls will be tested to determine their efficiency. In addition, the use of shrimp, fish, and lobster traps in unfavorable trawling areas will be continued.

For use in future tuna fishing explorations, a series of temperature stations will be made from the Mississippi coast south to about the 23rd parallel in order to determine thermocline levels in the Gulf in the winter.



Gulf Fishery Investigations

DRIFT CARDS BEING DISTRIBUTED IN GULF OF MEXICO: Several thousand post cards (each sealed in a plastic container) are being dropped in the Gulf of Mexico to

trace the complex system of surface currents in the Gulf. This project is sponsored by the Office of Naval Research, the Gulf Fishery Investigations of the U. S. Fish and Wildlife Service, the Texas Game, Fish, and Oyster Commission, and the Department of Oceanography of Texas A. and M. College.

Also cooperating in the undertaking is the Gulf States Marine Fisheries Commission.

U. S. Navy aircraft will distribute these "drift" cards at carefully established points throughout the Gulf during this year. Each card is printed in English and Spanish.

NOTICE TO FINDER NOTICIA A QUIEN ENCUENTRE

Interior—Duplicating Section, Washington, D. C. 81106

These cards are being used to study the currents of the Gulf of Mexico. Please remove from plastic and fill in blank spaces. Mail every card you find. No postage needed in U. S. In return you will be told the time and place of their release. Thank you.

Your name
Su nombre

Exact location of card
Exacta localidad donde aldo tarjeta

Your address
Su direccion

Date and place found
Fecha y hora que vd la alio'

Estas tarjetas son en conjunto con un estudio de las corrientes del Golfo de Mexico. Nos hara un gran servicio si las soca de su cubierta y llena en las lineas, la informacion que deseamos. Pongale una estampilla a cada tarjeta y echela al correo. Por su gran servicio vd a de recibir pago por cada estampilla y vd recibira informacion sobre la hora y el sito del despacho de cada tarjeta. Gracias.

Currents are expected to float most of the cards up on beaches, where many will be found and returned to the Gulf States Marine Fisheries Commission at New Orleans. The Commission will route them to scientists who will deduce therefrom the sea paths which the cards must have followed.

Studying marine currents by putting drift objects in the water is an old method. Oceanographers have generally used sealed bottles with cards in them to plot the ocean currents. Winds often influence too greatly the course followed by drift bottles, a result which the use of drift cards is expected to correct.



Once Important Florida Sponge Fishery Fading Out

Most of the Tarpon Springs sponge vessels are either tied up or engaged in tourist activities in an attempt to make expenses, according to a report from the Service's Red Tide Fishery Investigations at Sarasota, Florida. Two members of the Investigations' staff visited Tarpon Springs, Florida, in December 1950 to discuss with sponge fishermen the condition of the once-important Florida sponge fishery. They found that three companies operating six boats conduct demonstration dives; a few converted boats are used for deep-sea fishing. Some vessels operate off Key West in grounds which are difficult to fish but are reported unaffected by the blight which prevails on the grounds near Tarpon Springs. Because of the seasonal growth of "grass" and poor weather, vessels can work the grounds off of Key West only about one month in the year.

The occurrence of diseased sponges in the grounds off Tarpon Springs according to the chief of the Investigations, seems sporadic. New healthy sponges appear for a while and then suddenly become diseased. Boat owners restrict their fishing efforts to the shallower water in the hooking grounds, where they bring in a few marketable sponges, but scarcely make expenses. There are not enough healthy sponges in the deeper waters to warrant diving operations. Boat owners feel that either the State or the Federal Government should study the Florida sponge fishery.



Pacific Oceanic Fishery Investigations

"JOHN R. MANNING" TO PURSE SEINE TUNA IN PHOENIX AND LINE ISLANDS AREA (Cruise No. V): For seven weeks the John R. Manning, one of the Service's Pacific Oceanic Fishery Investigations vessels, will cruise through the Phoenix and Line Islands area in order to determine whether or not tunas may be caught in these regions with purse-seine equipment. On an earlier trip to the Phoenix Islands, the vessel encountered few fish and difficult weather. The present cruise is part of the overall plan to examine fishing possibilities at various times of the year.

A West Coast purse seine, modified by insertion of two strips of linen webbing, will be employed to determine the effectiveness of a deeper net for catching tunas in the Central Pacific Ocean, and to test the qualities of linen cordage. Experience to date has indicated that tuna schools in the area of the cruise swim more rapidly and act more erratically than do those encountered off Central America. Consequently, the best chances for success with this type of fishing seem to lie in a design which has been modified for speed and ease in handling.

Purse-line strain will be determined at various times during the actual set. Tests will be conducted also to determine the speed with which the lead line sinks and reaches the maximum depth.

Secondary objectives will include making hydrographic, biological and synoptic weather observations, and the collection of biological materials.

The vessel, which left Honolulu on or about January 11, is expected to return from this cruise between March 1-15, 1951.

* * * * *

OBSERVATIONS ON THE EQUATORIAL COUNTEREQUATORIAL CURRENT TO BE CONTINUED BY "HUGH M. SMITH" (Cruise No. VIII): In order to complete sections of hydrographic stations across the equatorial counterequatorial current system, the Hugh M. Smith left Honolulu on January 14 on its Cruise No. VIII. Because it now appears that the equatorial divergence is of primary importance in fertilizing surface waters, observations are needed farther southward into the adjacent south equatorial current than were made on previous trips. These will be taken on the Samoan leg of the cruise. The station pattern is also designed to give information on north-south shifts in the position of the system and the differences in intensity of the circulation from that observed on previous cruises and to investigate the possible existence of significant eddies or meanderings along the boundary of the counter-current.

This research vessel of the Service's Pacific Oceanic Fishery Investigations will occupy a series of 26 hydrographic stations between Honolulu and 7° S. Lat. along 158° W. Long. Then the ship will return to the north equatorial belt and proceed westward along a series of diagonals across the equatorial current system to about 165° 30' W. Long., occupying stations 27 to 62; then to American Samoa, occupying stations 63 to 76 in this section. After a short lay-over the vessel will cruise north to 21° N. Lat., occupying stations 77 to 106 in this last portion of the cruise; then proceed due east to Honolulu. About 8,700 miles will be covered by the Hugh M. Smith.

At chosen depths at each station temperatures will be taken, together with water samples which will be analyzed for salinity, oxygen, and inorganic nutrients. A plankton haul will also be taken at each station. In certain localities transparency measurements and hauls with a small fish trawl will be made. These data are being collected for determination of the position and extent of the counter-equatorial current in different longitudes, the degree of upwelling along the current boundaries, and the effect thereon on the general productivity of the region.

Bathythermograph observations will be made at regular intervals throughout the cruise. A thermograph recording surface temperatures will be operated continuously.

Observations will be made en route, during daylight hours, on the occurrence of tuna schools and associated phenomena. Specimens of adult tunas, juvenile tunas, and tuna food organisms will be collected by various means, including surface trolling, night-light fishing, plankton net towing, and pelagic trawling.



South Pacific Fishery Investigations

COOPERATIVE SARDINE RESEARCH PROGRAM NOTES FOR 1950: In investigating distribution and abundance of sardine spawning, the agencies cooperating in the Pacific Sardine Research Program have found sardine eggs to be spawned in the open sea near the surface, according to a report from the Service's South Pacific Fishery Investigations. Young sardine remain in upper layers, usually above 50 meters (164 feet). Hauling fine-meshed, silk plankton nets, vessel personnel quantitatively sampled eggs and young. At monthly intervals they collected oceanographic and biologic data, including plankton tows, in the waters from central Lower California to northern California and offshore to about 400 miles. The agencies cooperating in the program are the U. S. Fish and Wildlife Service, the Scripps Institution of Oceanography, the California Division of Fish and Game, and Industry (through the California Marine Research Committee). The Service's South Pacific Fishery Investigations' Black Douglas, and Scripps' Crest and Horizon, each covers a pattern of about 45 stations on each cruise.

The 1949 and 1950 investigations disclosed a compact area of intense spawning around and south of Cedros Island and a much larger area of more diffuse spawning off southern California and northern Lower California. Between these two areas spawning was meagre during both seasons and was confined to a narrow coastal strip. North of Pt. Conception during the second season it was meagre.

At the beginning of the 1950 season, spawning (at first confined to the southern portion of the surveyed area) gradually progressed northward as the season advanced. In February, the first cruise of the season, spawning was proceeding in the area around and south of Cedros Island. By March it had extended about 120 miles northward and during June extended from the Cedros area to San Francisco. Spawning was meagre over most of this range and only moderately heavy in the southern California area. July saw about the end of the spawning season.

In 1950, as in 1949, sardines spawned within a rather narrow temperature range. Of the sardine eggs sampled, 98.4 percent occurred between 12.5° and 16.0° C. (54.5-60.8° F.). The northward spawning progression in both seasons associated itself with northward progression of favorable spawning temperatures.

The two centers of heavy spawning are in areas enriched by upwelled water. Upwelling appears important because the nutrient enrichment associated with it increases food supply available to sardine larvae and upwelled water temperature is likely to favor spawning, especially in the southern part of the spawning range.

The manner in which currents in the two areas disperse the upwelled water seems to influence the extent of the two spawning centers. Currents carrying upwelled water from above and around Pt. Conception sweep in a broad arc before bending inshore off Lower California. In this area spawning extends seaward 300 miles or so. Since currents in the Cedros area are much closer to shore, spawning is concentrated within a 60 or 80-mile wide coastal strip.



U. S. Imports of Groundfish Fillets in 1950 Highest on Record

Imports of fresh and frozen cod, haddock, hake, pollock, cusk, and rosefish (ocean perch) fillets in 1950 were the highest on record (see table 1). The 1950 im-

ports of 66,618,167 pounds were 39 percent above the 1949 total of 47,776,990 pounds, according to preliminary data released in January by the Bureau of Customs.

Canada shipped 77 percent of the fillets imported into the United States during 1950; followed by Iceland, 19 percent; and Norway, 3 percent (see table 2). Most of the remaining 1 percent was received from Denmark, Greenland, and the United Kingdom.

QUOTA FOR 1951 ESTABLISHED:^{1/} The reduced-tariff-rate quota for the calendar year 1951 on fresh and frozen groundfish (cod, haddock, hake, pollock, cusk, and rosefish) fillets is 29,239,808 pounds, the Bureau of Customs announced on January 12. The annual quota for groundfish fillets is the quantity entitled to be entered for consumption in the United States at the rate of 1-7/8 cents per pound. This annual quota is further divided into quarterly quotas. Any quantity entered over the quarterly quota during each quarter will be dutiable at 2-1/2 cents per pound.

Table 1 - U. S. Imports of Fresh and Frozen Groundfish (Including Rosefish) Fillets, 1939-50			
Year	Pounds	Year	Pounds
1950 ...	1/ 66,618,167	1944 ...	24,545,569
1949 ...	47,776,990	1943 ...	16,323,416
1948 ...	53,727,697	1942 ...	16,674,082
1947 ...	35,093,435	1941 ...	9,931,030
1946 ...	49,171,089	1940 ...	9,739,853
1945 ...	43,169,156	1939 ...	9,426,285
1/ PRELIMINARY.			

Table 2 - U. S. Imports of Groundfish (Including Rosefish) Fillets, by Countries of Origin, 1948-50			
Country	1950 ^{1/} Pounds	1949 Pounds	1948 Pounds
Canada	51,067,779	42,459,033	49,141,992
Iceland	12,529,576	4,859,133	4,181,204
Norway	2,080,376	437,979	395,109
Denmark	595,256	-	9,352
Greenland	239,100	-	-
United Kingdom	93,858	-	-
Netherlands	11,475	20,845	-
Belgium	520	-	-
Sweden	122	-	40
German Federal Republic	91	-	-
Union of South Africa	14	-	-
Total	66,618,167	47,776,990	53,727,697
1/ PRELIMINARY.			

Of the total quantity of fish (29,239,808 pounds) entitled to entry at the rate of 1-7/8 cents, not more than one-fourth shall be entered at the reduced rate under the quota during the first, second, third, and fourth quarter, respectively. The quota for the first quarter (beginning January 1 and ending March 31, 1951) is 7,309,952 pounds, and the same amount is the quota for each succeeding quarter of 1951.

The quota for 1951 is a little over 11 percent higher than the quota of 26,235,738 pounds established for 1950.

1/ ALSO SEE PP. 95-6 OF THIS ISSUE.



Wholesale and Retail Prices

WHOLESALE PRICES, DECEMBER 1950: Generally higher wholesale prices for edible fishery products prevailed during December 1950. This was attributed to an increase in demand early in the month and to the usual seasonal drop in production.

In spite of the slackened demand that usually takes place in the marketing of most of these products during the Christmas-New Year holiday period, wholesale fishery products prices rose, conforming to the price trend of most other foods and commodities. The edible fish and shellfish (fresh, frozen, and canned) wholesale index for December was 112.9 percent of the 1947 average (see table 1)--3.4 percent higher than the previous month and 12.2 percent above December 1949, the Bureau of Labor Statistics of the Department of Labor reports.

Table 1 - Wholesale Average Prices and Indexes of Fish and Shellfish, December 1950, with Comparative Data									
GROUP, SUBGROUP, AND ITEM SPECIFICATION	POINT OF PRICING	UNIT	AVERAGE PRICES (\$)			INDEXES (1947 = 100)			
			Dec. 1950	Nov. 1950	Dec. 1949	Dec. 1950	Nov. 1950	Dec. 1949	
ALL FISH AND SHELLFISH (Fresh, Frozen, and Canned)						112.9	109.2	100.6	
Fresh and Frozen Fishery Products:						112.9	106.9	105.2	
Drawn, Dressed, or Whole Finfish:						130.2	124.7	111.7	
Haddock, large, offshore, drawn, fresh	Boston	lb.	.14	.12	.12	142.4	128.1	125.7	
Halibut, Western, 20/30 lb., dressed, fresh or frozen	New York City	"	.40	.40	.31	115.3	116.0	90.3	
Salmon, king, lge. & med., dressed, fresh or frozen	" " "	"	.55	.55	.46	134.4	133.9	112.8	
Lake trout, domestic, mostly No. 1, drawn (dressed), fresh	Chicago	"	.50	.48	.57	109.8	104.3	123.2	
Whitefish, mostly Lake Superior, drawn (dressed), fresh	"	"	.51	.52	.47	146.0	149.6	136.2	
Whitefish, mostly Lake Erie pound net, round, fresh	New York City	"	.61	.53	.58	137.9	120.7	130.8	
Yellow pike, mostly Michigan (lakes Michigan & Huron), round, fresh	" " "	"	.39	.41	.31	92.2	95.1	72.9	
Processed, Fresh (Fish and Shellfish):						95.1	86.1	99.4	
Fillet, haddock, small, skins on, 20-lb. tins	Boston	lb.	.28	.25	.35	99.9	90.7	126.0	
Shrimp, lge. (26-30 count), headless, fresh or frozen	New York City	"	.55	.51	.66	79.7	73.6	95.6	
Oysters, shucked, standards	Norfolk area	gal.	4.88	4.51	4.00	120.0	106.2	98.5	
Processed, Frozen (Fish and Shellfish):						97.4	97.0	97.3	
Fillet, 10-lb. boxes	Boston	lb.	.35	.35	.28	113.0	113.0	90.4	
Haddock, small, 10-lb. cello-pack	"	"	.22	.23	.26	100.7	104.1	115.5	
Rosefish, 10-lb. cello-pack	Cloueseter	"	.26	.26	.21	131.9	130.0	105.6	
Shrimp, lge. (26-30 count), 5- to 10-lb. boxes	Chicago	"	.59	.56	.61	75.9	74.9	80.2	
Canned Fishery Products:						112.9	112.5	93.5	
Salmon, pink, No. 1 tall (16 oz.), 48 cans per case	Seattle	case	23.64	23.64	15.76	154.1	154.1	102.7	
Tuna, light meat, solid pack, No. 3 tuna (7 oz.), 48 cans per case	Los Angeles	"	14.75	14.75	15.25	96.0	96.0	99.2	
Sardines (pilchards), California, tomato pack, No. 1 oval (15 oz.), 48 cans per case	"	"	6.25	6.25	5.63	69.9	69.9	62.9	
Sardines, Maine, keyless oil, No. 2 drawn (3 1/2 oz.), 100 cans per case	New York City	"	5.50	5.25	7.25	53.9	51.5	71.1	

All subgroups in the fishery products wholesale index for December 1950 indicated a general increase over the previous month and over December 1949. The only exception was the processed fresh fish and shellfish subgroup which dropped below the index for a year earlier.

Lighter landings of haddock in New England, a light supply and an increased demand for oysters, and an improvement in the demand for shrimp were the main factors responsible for the large increase in the subgroup index for fresh processed fishery products. This index jumped 10.5 percent from November to December, but was still 4.3 percent below the corresponding period a year earlier.

There was a rise of 4.4 percent from November to December in the drawn, dressed, or whole fin fish subgroup due to a smaller production of nearly all items included in this category--a general seasonal occurrence. However, the December 1950 index was 16.6 percent higher than a year earlier.

With cold storage holdings at the highest point for the year, the December index for processed frozen fish and shellfish increased 0.4 percent over November, but was only 0.1 percent higher than in the last month of 1949. In this subgroup, the increases occurred mainly in frozen rosefish fillets (holdings of which are below a year earlier) and shrimp (in spite of heavy imports from Mexico). The unusual heavy catches of small scrod haddock landed at Boston towards the latter part of 1950 increased the processing of frozen small haddock fillets and consequently prices quoted for this product dropped in December.

Since canned fishery products, especially salmon, had already increased substantially a few months earlier, December's index for this subgroup was only 0.4 percent higher than the previous month, but 20.6 percent greater than in December 1949. Mainly responsible for the small climb in this subgroup during December was the increase which occurred in the prices for canned Maine sardines. Prices quoted for canned salmon, California sardines, and tuna were similar to those that prevailed in November.

RETAIL PRICES, DECEMBER 1950: The retail fishery products index did not increase as much as that for all foods from November 15 to December 15, 1950. However, retail fishery products prices continued to climb (see table 2). Between mid-November and mid-December 1950, retail food prices rose 2.8 percent, but fish and shellfish (fresh, frozen, and canned) retail prices increased only 1.0 percent. Compared with mid-December 1949, the retail index in mid-December 1950 was higher for all foods by 9.2 percent, but for all fish and shellfish (fresh, frozen, and canned) it was 13.6 percent higher. The major portion of the increase in fishery products is due to higher prices quoted for canned fish, especially canned salmon.

Fresh and frozen fishery products prices in mid-December 1950 were only 0.2 percent above those which prevailed in mid-November, but they were 7.5 percent higher than in mid-December 1949.

Canned pink salmon also continued to increase and the index on December 15, 1950, was 456.4 percent of the 1938-39 average--2.3 percent above the previous month, and 26.8 percent greater than in mid-December 1949.

Table 2 - Retail Price Indexes for Foods and Fishery Products,
December 15, 1950, with Comparative Data

Item	Base	I N D E X E S		
		Dec. 15, 1950	Nov. 15, 1950	Dec. 15, 1949
All foods	1935-39 = 100	215.4	209.5	197.3
All fish and shellfish (fresh, frozen, & canned) ..	do	339.8	336.5	299.0
Fresh and frozen fish	1938-39 = 100	287.1	286.5	267.1
Canned salmon: pink	do	456.4	445.9	359.8

OFFICIAL
-16

Economic Cooperation Administration Program Notes

DANISH VETERINARIAN IN U. S. STUDIES BACTERIOLOGICAL METHODS OF PRESERVING AND SHIPPING FISHERY PRODUCTS: A Danish veterinary surgeon is in this country for a three-month study of bacteriological methods of processing, canning, and shipping fishery products, the Economic Cooperation Administration announced on January 24.

Sanitary and hygienic measures to raise the quality of fish and shellfish and methods of preventing spoilage are the particular interests of Hans P. Riemann, staff member of the Research Laboratory of the Danish Ministry of Fisheries.

The study is important to the Danish fishing industry, which in 1949 exported fish valued at 192 million kroner (\$27,840,000) and which expects to increase its volume.

Riemann, whose study is sponsored by the Economic Cooperation Administration under its technical assistance program, will visit Government and private research institutions and canneries on the Atlantic, Pacific, and Gulf coasts, as well as Chicago.

* * * * *

INDONESIA TO USE ECA FUNDS TO RESTORE FISHING INDUSTRY: A series of U. S. aid projects have been launched by the Economic Cooperation Administration to assist the Indonesian Government in certain aspects of its efforts to restore and advance the public health services, restore the fishing industry, aid the small rubber planters, develop forest resources, stimulate agriculture, and support small industries throughout the country, ECA announced on January 26.

The program of assistance to Indonesia has been developing over the past six months, since the Congress last July authorized ECA. to extend its program to the countries of Southeast Asia. Burma, Thailand, and Indo-China also are receiving U. S. technical and economic assistance.

A small American mission was sent to Djakarta, the Indonesian capital, and has been helping the Indonesian Government lay the groundwork for getting the maximum benefit from the American aid. American specialists in health and medicine, sanitation, agriculture, forestry and lumbering, fisheries, and industry are being recruited to work with the Indonesian Government officials.

* * * * *

NEW SLOGAN FOR ECA SHIPMENTS: A new slogan, "Strength for the Free World--From the United States of America," will appear on the ECA emblem which marks American-financed shipments to Europe and Southeast Asia, states a January 27 news release from ECA. It replaces the previous slogan, "For European Recovery, Supplied by the USA," which has identified goods financed under the Marshall Plan.

Adoption of the new slogan, the ECA Administrator said, is a symbol of ECA's new role in world affairs. From an assignment of promoting postwar recovery in Europe through the Marshall Plan, ECA has developed into a global operation with increasingly responsible duties in the mobilization picture. As an economic arm of the United States' foreign policy it is now operating in Southeast Asia as well as in the countries of Western Europe and their overseas dependencies.

ECA has changed gradually into its new role since the start of the Korean war last June with defense needs receiving priority over requests for recovery projects. While still responsible for providing economic aid to maintain a solid economic base for the western world's defense program, ECA is now emphasizing programs to increase military production in Western Europe. This objective will be reached by supplying direct aid in the form of raw materials and machinery as well as technical assistance to the industrial plants of the North Atlantic Treaty countries.

ECA regulations require each supplying company to clearly label European-bound goods, where practicable, with the official emblem. Regulations covering the relatively new Southeast Asia program are being revised to include this responsibility.

ECA does not supply labels or stencils, but furnishes samples which can be made up by the supplying company itself or purchased from label supply firms. Samples of the new insignia are available from the ECA Office of Information, Washington 25, D. C.



ECA Procurement Authorizations for Fishery Products

No procurement and reimbursement authorizations for fishery products (edible and inedible) were announced by the Economic Cooperation Administration during January 1951. In addition, no cancellations or decreases affecting previous authorizations for fishery products were reported. (See Commercial Fisheries Review, January 1951, p.44 for cumulative totals).

However, during January ECA announced a procurement and reimbursement authorization of \$395,000 to be used by the Indonesian Republic for purchasing fishing equipment from the Netherlands, Japan, and the United States and Possessions.



CANADIAN POSTAGE STAMP HONORS FISHERIES

A new \$1.00 Canadian postage stamp, in recognition of the commercial fisheries of that country, was issued on February 1, 1951, by the Canadian Post Office Department, reports the November 1950 Trade News of the Department of Fisheries.

The stamp emphasizes the great wealth of the fishery resources which are accessible to Canadian fishermen off both the East and West coasts and in the inland lakes and rivers.

The central subject in the design is symbolic of Canada's hardy fisherman, showing one of them in an open boat, hauling in a net. Surrounding this subject is a wide border with a fish-net background, upon which are illustrated 16 varieties of fishery products important to Canada's economy.



The new postage stamp is green and is the same size as the current \$1.00 postage stamp, approximately $1\frac{1}{2}$ inches by 1 inch.



International

FOOD AND AGRICULTURE ORGANIZATION BUDGET FOR 1951:

The Food and Agriculture Organization has issued its budget for 1951 (approved by the Conference). The proposed budget for 1951 is US\$5,025,000; however, proposed expenditures are proposed on the basis of the first \$4,500,000 income and then additional expenditures are proposed if the receipts of the FAO are \$5,000,000.



The budget for the Fisheries Division of FAO is as follows:

Expenditure by Functions	1950 Budget Allocation	1951 Proposed Budget	1951 Expenditure on Basis of First \$4.5 million Receipts	Additional Expenditure if Receipts are \$5 million
	(in U. S. \$)			
Direction	48,800	50,099	43,599	6,500
Economics and Statistics	60,500	51,284	51,284	-
Biology	47,000	44,264	44,764	(plus \$500)
Technology	54,500	53,472	53,222	250
Regional Activities:				
Asia and the Far East	29,500	37,669	27,007	10,662
Europe and the Near East ..	16,700	14,619	14,619	-
Latin America	15,700	16,578	15,528	1,050
Totals	272,700	267,985	250,023	17,962



Aden Protectorate

STATUS OF THE FISHERIES: The basis of the fisheries in the Aden Protectorate are the sardine (mostly Sardinella longiceps) shoals which move close inshore throughout the winter, states an October 24, 1950, American consular dispatch from Aden. The main fishery is from October to December, but the fish may remain until the southwest monsoon breaks in May or June. Initially the oil content of the fish is high, but it falls off as the season advances.

The sardine shoals are accompanied by large fish—the two most important are "deirak" (Scomberomorus commersoni) and "thamed" (tunny—Neothunnus alalunga), but other species of tunny and horse mackerel abound. Sharks are also fairly plentiful at such times but their occurrence in numbers is spasmodic.

The fishery is unreliable since the amount of sardines and their attendant predators vary greatly from year to year. The winter of 1947-48 was exceptionally good but those of 1948-49 and 1949-50 have been the poorest within living memory, barely enough fish being taken to supply local needs.

The main fishery is on the Mahra Coast on either side of Ras Fartak, towards the extreme eastern end of the Protectorate. From there westward the fishery declines in importance, the sardines rarely reaching Aden in any numbers. There is, however, a considerable summer fishery at Aden, mostly for "dairak."

Sardines are taken in cast nets and beach seines and their predators on hand lines and in various forms of gill nets. The boats are either dugout canoes imported from India (to which a strake is added locally) or double-ended surf boats (the planks of which are pegged and sewn together with coir twine). The only larger fishing craft are dhows, up to 60 feet long, which work a number of single-hook shark lines, or others which operate several "deirak" gill nets.

The sardines not locally consumed are either sun-dried to make a very poor and varied product (used as a crop fertilizer, but also eaten by camels and the poorest people) or else they are rotted in heaps to free a putrid oil. Larger fish are salted and dried in various ways for export, mostly through Aden to the Far East and East Africa.

A very rough estimate, made several years ago, reckoned a good year's catch of all species for the whole Protectorate at 50,000 metric tons of fish (landed weight).

The Aden Fishery Department was founded towards the end of 1947. The failure of the following two seasons and mechanical trouble with the Department's fishery vessel, a 50-foot ex-naval craft, have hindered its work considerably; but statistical posts have been established along most of the coast and a new knowledge of the fisheries has been steadily accumulated. The failure of the past two seasons has made it difficult to promote any real developments, but when the sardines return it is hoped that fish meal and oil production may be started. The canning of tunny is another promising development. However, these are left to private enterprise or to one of the British Government Corporations for development. The Aden Government is not constituted to undertake commercial activity and the Fishery Department has a total staff of 2 British and 13 Arabs, including the crew of the fishery vessel and the statistical collectors, all of whom are already fully occupied.



Australia

FIJI-SAMOA TUNA ENTERPRISES' CLIPPER FISHING IN AUSTRALIAN WATERS: Interest in tuna industry possibilities has spread from New South Wales to Western and South Australia since the Senibua, a tuna vessel owned and operated by the company which was organized to catch tuna in Fijian waters, made its first trip pole fishing for tuna off New South Wales in October. On its first cruise in Australian waters, the tuna clipper caught six metric tons of southern bluefin tuna, averaging about 30 pounds each, in 40 minutes, the November 1950 Fisheries Newsletter issued by the Commonwealth Director of Fisheries reported. The fish were taken in mid-October about 10 miles southeast of St. George's Head (adjoining Jervis Bay) in about 80 fathoms. Bad weather caused the Senibua to return to Sydney with only 12 metric tons of tuna.

1/ SEE COMMERCIAL FISHERIES REVIEW, OCTOBER 1950, P. 41; SEPTEMBER 1950, P. 52; FEBRUARY 1949, PP. 58-9.

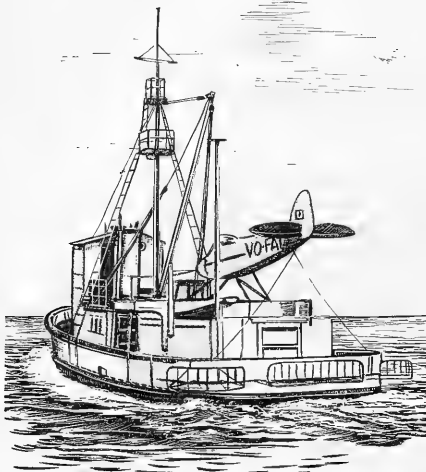
Australian fish canneries have approached the Government for a visit by the Senibua in both New South Wales and Western and South Australia. In Adelaide, an Australian cannery announced at the end of September that it would commence canning tuna in October using a machine with a capacity of 10,000 cans per 8-hour day. The company stated it would concentrate on the Australian market first but would export when the home demand was satisfied. Advance orders had been "received from all parts of the world," according to the statement by the company. Fishermen will be paid 6d. (approximately 5.4 cents) per pound.

The Senibua left Sydney October 9, 1950, for its first cruise. Trolling lines were set out and the first tuna were caught early the next day, 25 miles east of Bateman's Bay. Experienced fishermen on board considered that with proper live bait (which the clipper did not have at the time) 25 tons of tuna could have been landed from the first school encountered. The tuna clipper was successful in taking bait at night with a lampara net and lights. Although the vessel sighted tuna during the first part of the voyage, bad weather hampered operations. On its way north, the Senibua was able to capture 12 tons of tuna.

Three Australian fishermen were signed on the vessel in order to learn tuna pole-fishing techniques.

The Senibua has three live-bait tanks, a spotting plane, six brine wells, two

skiffs, as well as fishing gear. The propelling 190-h.p. Diesel unit is controlled from the wheelhouse (also can be controlled from the compressor room and engine room). There is a direction finder in the wheelhouse, and a direct-reading sonic depth finder which measures depths from 50 to 600 feet in feet and fathoms, as well as a transmitting and receiving radiotelescope set. The plane was stowed on top of the live-bait tanks. On this trip the wings of the plane were dismantled because they projected eight feet on each side of the vessel, and if struck by a heavy sea they would be smashed. Normally the plane is shore-based.



STERN VIEW OF SENIBUA SHOWING FISHING RACKS AND LIVE-BAIT TANKS. SPOTTING PLANE FITTED WITH FLOATS ON TOP OF TANKS. VESSEL FISHING FOR TUNA OFF AUSTRALIA.

There is a poop walk from the foredeck to the live-bait tanks so that the crew can get quickly into position during fishing. The live-bait tanks are built on the after part of the main deck. They are fitted with slides so their size can

be varied. The forward and midship tanks are fitted with coils so that they can also be used to store tuna. Total capacity of the tanks is 2 tons of live bait or 16 tons of fish. The overflow from the tanks goes out on the starboard side because

this helps to hold the vessel at an angle to the wind. The tanks are serviced by 6-inch pipes and pumps with a capacity of 500 gallons per minute, and are kept lighted all the time bait is in them.

When fishing is about to begin, a section of netting (a crowder) is kept ready beside the tanks for use as soon as fishing begins. The purpose is to crowd the live bait into a smaller space in the tank so that it can be more quickly scooped out by the chummer.

The vessel has six brine wells with a capacity of 52 tons (one on each side of the live bait tanks, and two on each side of the vessel, going forward). All the wells and bait tanks are interconnected, and the two midship wells can also be used for holding bait.

On the top of the live bait tanks on the port side, an 18-foot power skiff is carried, and on the starboard side a bait punt which carries a light when bait is being fished. Lampara nets are used for bait operations, and the Senibua has four of these as well as a beach net.

With seven fishing racks, 22 fishermen can fish at one time. The stern rack takes four men; two corner racks (one on each side of the stern rack) each take three men; and four side racks (two on each side of the vessel) each takes three men. The two corner racks are regarded as the most important and the most skilled fishermen are consequently stationed on them, because the tuna seem to prefer to come at an angle to the vessel.

The Senibua is equipped with two fuel tanks with a total capacity of 4,500 gallons; two ammonia condensers; an electrically driven windlass; two anchors; and numerous other equipment.

Full loaded, the Senibua draws 12 feet. It is 75 feet between perpendiculars, and has an 18-foot beam.

The tuna poles are made of Japanese bamboo, and the one-man pole is 12 feet to 14 feet long, and 2 inches in diameter at the butt tapering to 1 inch at the top.

The Piper Cub spotting plane used is 28 feet long and has a wing spread of 35 feet. It can take off in about 170 yards and has a range of 200 miles. A two-way radiotelephone connects it with the tuna clipper. Flying at 800 feet, the observer who accompanies the pilot of the plane can see birds working over small fish and can identify fish when a school is sighted. Fuel supplies have been arranged for at Sydney, Mallacoota Inlet, Twofold Bay, Narooma, Lake Burrill, and Lake Illawarra so that it can operate from those points.

The company that owns the Senibua is one of two companies organized by Harold Gatty, round-the-world flier. The associated company built a cannery in American Samoa. However, it has been reported that tuna in Fijian waters could not be caught in sufficient quantities. It is also reported that Gatty resigned from both companies in June 1950.

In addition to the Senibua, the tuna fishing company operating out of the Fiji Islands owns two other brine-equipped tuna clippers (Senirosi and Senileba); two live-bait fishing boats (Mere and Sali); and a freezing mothership (Isalei—112 ft. long with three ammonia compressors and a quick freezing section in the brine cooler).

Bermuda

RESEARCH FISHING PROGRAM PLANNED: The methods proposed for the research fishing program contemplated in the waters off Bermuda under the auspices of the Government Aquarium include the long-line fishing method, a January 4 American consular dispatch from Hamilton reports.

It is the general consensus of opinion in Bermuda that every avenue of food supply offered by fishing should be explored, as this might provide much-needed food in times of crisis as well as establish an industry which can be run economically and efficiently with Government support.

However, Louis Mowbray, Curator of the Aquarium, on December 29 issued a warning to the Colony's fishermen and others who may be planning offshore fishing ventures. He feels that everyone interested in commercial fishing should lend their efforts toward the promotion of a carefully planned Government-sponsored research program. The field should be surveyed and fishing grounds mapped within a 20-mile radius of Bermuda, according to him, since the quantities of deep-sea fish of commercial value around Bermuda are not known at present and afford a wonderful field for research.

The Colony's location offers excellent and as yet untapped fishing grounds, but individual persons can waste money and much equipment, states Mowbray, if they drop their nets into the water before research fishing is carried out. He feels that a proper research program would require at least 12 months.



British Honduras

FISHERY DEVELOPMENT DEPARTMENT ESTABLISHED: The British Colonial Authorities have approved the organization of a new department in British Honduras to be known as the "Fishery Development Department." Funds for this Department have been received from the Secretary of State and were appropriated under a Colonial Development and Welfare Grant (£6,172—approximately \$17,282), reports a November 9, 1950, American consular dispatch from Belize.

The functions of this Department will be the conservation of existing stocks of fish to prevent depletion through overfishing or improper fishing methods; the carrying out of experimental work for discovering new fishing grounds and the development of the industry; the improvement of present methods of fishing and the curing of fish for the expansion of the Colony's export trade; the enforcement of legislation controlling fishing within the Colony; the improvement of the equipment and status of fishermen (by credit facilities, etc.); and keeping a check on the progress made by an efficient and reliable collection system of collecting statistics (quantity, value, and fishing effort expended).



Canada

EXPANSION OF ATLANTIC COAST TRAWLER FLEET: Canada's Atlantic coast trawler fleet is rapidly expanding as a result of the easing of trawler license restrictions announced a little more than a year ago by the Minister of Fisheries, the December 1950 Trade News of the Canadian Fisheries Department reports. Seven trawlers are at present being built in Canada and three are being built in the United Kingdom for the Canadian fishing industry. All these vessels are in the large dragger category--100 feet or more in length. The seven keels which have been laid in Canada permit, under the new trawler policy, the licensing of the same number of secondhand trawlers if bought either in the United Kingdom or in the United States and registered in Canada after payment of duty. Thus, under the current building program, the Canadian trawler fleet will increase by at least 10 vessels, and licenses could be obtained for seven more.

In addition, the industry is contemplating the construction of two more trawlers in Canada and seven in the United Kingdom. This additional construction, if proceeded with, would add another nine trawlers to the fleet or 11 if advantage is taken of the opportunity to license secondhand vessels from the United States or the United Kingdom.

Of the vessels now under construction, Nova Scotia firms are building six in Canada and two in the United Kingdom, while Newfoundland is building one in Canada and one in the United Kingdom.

Prior to the announcement of the Department's change in policy on Atlantic Coast trawlers, licenses for trawlers were issued only to Canadian-built ships, and with the exception of the number of draggers built under subsidy during the war and in the postwar period, no additions to the Canadian trawler fleet have been made for many years.

The trawler policy was revised to promote an orderly expansion of the Maritime industry's catching facilities so that it could take greater advantage of the stocks available and at the same time to help it meet market demands for fresh and frozen fish.



Costa Rica

HIGHEST COURT RULES COSTA RICAN TERRITORIAL WATERS EXTEND ONLY THREE NAUTICAL MILES: The Sala de Casación, the highest court and the court of last appeal in Costa Rica, has handed down a decision in which it upheld the decision of lower courts to the effect that Costa Rican courts do not have jurisdiction beyond the extent of the country's territorial waters and that those waters, in accordance with the Constitution, extend three nautical miles from the low-water line in accordance with the principles of International Law.

The case arose over the collision of two ships in the Pacific Ocean about 30 miles southwest of Cabo Blanco, a December 28, 1950, American Embassy dispatch from San Jose reports. The Sala de Casación limited its decision to a determination of jurisdiction of Costa Rican courts in it. The court stated that the current Constitution, which became effective on November 8, 1949, limits national sovereignty to the country's territorial waters, and that the extent of those waters, in accordance

with the Constitution and the principles of International Law, is three nautical miles from the low-water line of the coasts.

One of the judges of the court submitted a separate opinion in which he concurred in the findings of the court but expanded on the legal aspects of the decision. He referred to the fact that it had been claimed that Decree Law No. 116 of July 27, 1948, extended the country's sovereignty to 200 miles from the coast and (thus) extended the territorial waters of Costa Rica to the same distance. He referred to Article 6 of the Constitution which has been referred to above and went on to say that the Constitution, promulgated on November 7, 1949 and effective the following day, through its Article 6 revoked that part of Decree Law No. 116 which refers to sovereignty of the State in its territorial waters not only tacitly by a substantial modification but also in an express manner. The limit of territorial waters at three miles from the low-tide line must be accepted as a principle of International Law he said. He reached the same conclusion as the full court: Costa Rican courts have no jurisdiction beyond the three-mile limit.

1/ SEE COMMERCIAL FISHERIES REVIEW, OCTOBER 1948, P. 41.



Denmark

DANISH FISHERIES FAIR PLANNED: The first Danish Fisheries Fair will be held in the important fisheries base, Frederikshavn, Jutland, July 7-16, 1951, an American Embassy dispatch from Copenhagen dated October 25, 1950, reports.

The Fair will cover a space of 3,300 square meters and will supply a comprehensive picture of Danish fisheries and its affiliated industries. It will be divided into the following five sections:

1. Catches of the fisheries in general, by breeds and quantities; exports; home market consumption; fisheries propaganda; new export opportunities; demonstration of preparation of fish
2. Fishing-shipyards; engines; catching equipment; salvage equipment
3. All shades of the Danish fisheries industry with workingstands
4. Modern fisheries equipment, such as navigation instruments; Decca; echo sounding gear; radio; etc.
5. Pleasure fishing

The Fair is sponsored by the Danish Ministry of Fisheries, two associations of Danish fishermen, the wholesalers' and retailers' organizations, the cannery industry, the Fisheries Propaganda Association, the Danish Biological Station, and the Ministry of Fisheries' Test Laboratory.

The Fair enjoys the financial support of several of the sponsors, and all entry fees, without any deductions, will accrue to a Fund for Danish Fisheries.

This joint move on the part of all segments of the Danish fisheries is considered an important further expression of a general public and private realization of

the importance of Danish fisheries to the national economy, particularly as an export trade. The first expression of this realization was the separation, in September 1947, of the trade from the jurisdiction of the Ministry of Agriculture and the establishment of an independent Ministry of Fisheries. Since its establishment, this Ministry has made considerable effort to bring about the cooperation of all sections of the industry, and this Fair is one of the results of these efforts.



Egypt

FISHING PORT PLANNED FOR PORT SAID: A fishing port in Port Said at the right of the entrance to Port Said harbor is planned by the Suez Canal Company, reports a November 9, 1950, American consular dispatch from that city. This port will cover an area of 2,000 square meters and will accommodate and provide safe berthing for all fishing and sailing craft, thus leaving the Port free from these craft. The cost of the project is estimated at £1,000,000 (\$2,870,000), and it will take at least two years to complete the port.



CARGO BOAT ON THE NILE RIVER.

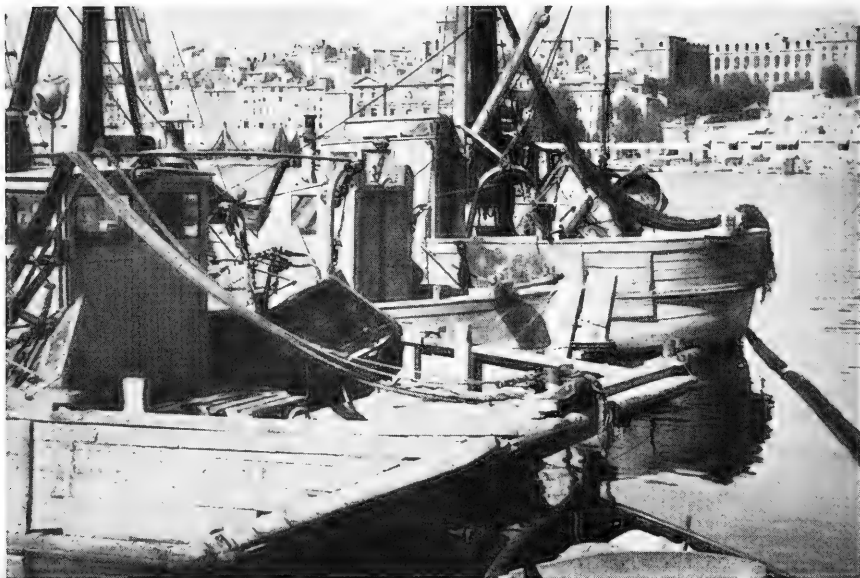
During the sardine season, fishing craft are so numerous in Port Said harbor that they constitute a constant menace and danger to navigation, and it is believed that the new fishing port will eliminate the concentration of fishing vessels in the harbor.



France

FISH CONSUMPTION AND PRODUCTION, 1950: At an international congress (Congres International D'Etude sur Le Role du Poisson dans L'Alimentation) that was held in Paris in October 1950 to study the various aspects of the fishing industry, it was pointed out that the present average consumption of fish per person in France did not exceed 15.4 pounds per year, compared with an average of 19.8 pounds before World War II. It was stated that the French fishing fleet was capable as far as available tonnage and equipment is concerned, of supplying enough fish to raise the per capita annual consumption to 26.4 pounds, according to a November 22 American consular dispatch from Paris.

The Comite National de Propagande pour la Consommation du Poisson (A National Fish Consumption Advertising Committee) is continuing its efforts to popularize and increase the consumption of fishery products, and recently recommended that the practice of selling filleted and attractively wrapped fishery products at reasonable prices be introduced with a view to encouraging sales. Attention has also been called in Parliament to the advisability of improving transportation methods for fish, particularly to smaller centers, and providing better facilities for handling and keeping fish in good condition at landing ports.



FRENCH TRAWLERS DOCKED AT MARSEILLE.

France's total fisheries production for 1950 is estimated at approximately 275,000 metric tons, compared with 300,000 tons in 1949 and 310,000 tons in 1948. The decline in fisheries production in 1950 is particularly marked in the case of the tunny fishery in spite of the greater number of vessels engaged in this fishery.



French Morocco

SARDINE PACK UP IN 1950: Figures are not yet available for French Morocco's 1950 fish canning season, which reaches its peak at the end of the year. However, preliminary reports indicate that the 1950 fish catch will exceed 100,000 metric tons (chiefly sardines) as compared with approximately 93,000 metric tons in 1949, reports a December 19 American consular dispatch from Casablanca. It seems probable, therefore, that the sardine canning industry will surpass last year's total of 2,500,000 cases.

Markets are of increasingly greater concern to this industry, which was helped substantially in the current year by a British Government order of one million cases. It is reported that this order will be renewed, however, and in addition the industry hopes for increasing success in the German and United States markets. Sardine exports to the United States will probably exceed \$200,000 in 1950 as against less than \$50,000 in 1949, and greater attention is now being given to American tastes in labeling and packing.

Iceland

BULK OF TRAWLER FLEET TO FISH FOR ROSEFISH: Excitement has followed reports that there is an active market in the United States for frozen redfish (oceanperch, rosefish) fillets, according to a November 16 American consular dispatch from Reykjavik. Two of the first trawlers to go out after the settlement of the labor dispute on November 6, 1950, brought back good catches of redfish, which have been frozen at the towns of Keflavik and Akranes. Freezing plants in these towns were reported to be working at full blast for the first time in many months.

Following the settlement of the seamen's labor dispute which had immobilized trawlers in Iceland for a little more than four months, a total of 34 trawlers left or were preparing to leave for the fishing grounds in mid-November 1950. These include 33 new (postwar) trawlers and one old trawler—11 perwar trawlers, making up the balance of Iceland's operational trawler fleet, were scheduled to leave in time for the main fishing season which begins in January.

According to the type of fishing, the Icelandic trawler fleet operating in mid-November was divided as follows:

<u>No. of Vessels</u>	<u>Type of Fishing</u>
9	For fresh fish on ice for delivery to Western Germany
2	For fresh fish on ice for delivery to the United Kingdom
23	For redfish (both for freezing and processing into meal and oil)

Because of the limitations placed on the delivery of iced fish to Western Germany and some difficulties experienced in marketing iced fish in the United Kingdom, only 11 vessels of the trawler fleet were sent out to fish for fish to be delivered iced. An increase in the demand for iced fish was reported from the United Kingdom, but Icelandic operators were dubious of marketing possibilities.

The market for redfish meal and oil continues to be favorable. Redfish catches by trawlers operating in this fishery will be processed into meal and oil at a number of plants in southwest Iceland. The most modern fish-reduction plant in Iceland (in Reykjavik) was expected to commence full-scale operations for the first time in November 1950, using redfish.

* * * * *

NEW TRAWLERS FOR ICELANDIC FISHERIES BEING BUILT IN GREAT BRITAIN: The first of the ten new trawlers being built by British shipyards for Iceland on contracts placed in 1948 was delivered late in December 1950. Named Hardbakur by her owners, a company in the north coast town of Akureyri, the vessel is now fishing for the British fresh fish market, states a January 16 American consular dispatch from Reykjavik.

The Hardbakur is a steam trawler of dimensions reported to be similar to those of the Neptunus - a type of trawler delivered by the United Kingdom to Iceland in 1948. The Neptunus is 684 gross metric tons, 183 feet long, 30 feet broad, and has a triple-expansion engine rated at 1,000 h.p.

The nine other trawlers are scheduled to be delivered by British yards in the current year. Two of the ten new trawlers are Diesel-powered, while the others have

steam power. The steam trawlers are reported to be similar in dimensions to the Hardbakur. The two Diesel trawlers are understood to be 20 to 30 gross tons larger than the steam trawlers. The principal difference between the ten new trawlers and Iceland's 33 so-called "reconstruction" trawlers delivered by British shipyards in 1946-48 is that the new trawlers all have fish-meal processing equipment on board. The Hardbakur is the first Icelandic trawler to have such equipment.

The new trawlers are reported to be selling for about 8,500,000 to 9,000,000 kronur (US \$520,800 to \$551,500). Sales are being handled by the Icelandic Government, which has arranged financing of the construction in British shipyards through loans extended by British banks. The cost of the new trawlers is about three times as high in Icelandic currency as the cost of the trawlers delivered in 1946-1948; those trawlers sold locally for approximately 3,000,000 kronur (which was then equivalent to about US \$461,200). There were substantial devaluations of the Icelandic krona in September 1949 and March 1950, which account for the disproportionate increase in the local cost of the new trawlers.

In addition to the high initial cost, other factors make it problematical whether the new trawlers can be operated at a profit. The effect of the 42.6 percent devaluation in March 1950 on the trawler fleet has not yet been fully measured since the trawlers were laid up by a seamen's labor dispute from July 1 to early November 1950. Another question is the increased operating cost resulting from the new wage contracts entered into by trawler crews and operators at the conclusion of the labor dispute last November. Another imponderable is the future of the European iced fish market; Iceland made lucrative deliveries in the United Kingdom and West Germany in 1948, when contracts were let for the 10 new trawlers, but these markets were unsatisfactory in 1950. At one time last year it is understood that the desirability of disposing of the 10 new trawlers outside Iceland was under serious consideration in Iceland.

However, the Icelandic Government is now having little difficulty in selling the new trawlers to Icelandic operators. Seven of the trawlers have already been sold and bids for the three others are now under consideration.



Indonesia

DEVELOPING FISHERIES WITH ECA AID: In an effort to raise the standard of living of her one million regular and casual fishermen, the new Republic of Indonesia is using American aid to supplement her own resources in financing a program designed to increase the country's annual catch of fish, the Economic Cooperation Administration announced on January 5, 1951.

Fishing has long been an important segment of the economy of the Indonesian archipelago with its tens of thousands of square miles of fishing grounds. The Indonesian Government is making a determined effort to step up fish production and simultaneously lift the social and economic status of fishermen. ECA is assisting the program financially and with technical aid. It recently made a thorough survey of Indonesia's fishery potentialities and needs.

Because fish was not a major export crop, and since Indonesia has tin, rubber, pepper, copra, and other valuable products to sell to the world, fishing received little governmental help until less than 50 years ago. By 1939 there were only 32 motorized fishing vessels in the country. There are only 45 today.

Indonesia planned to motorize the fishing fleet when it appeared that World War II might cut off the country's fish imports, but the Japanese occupied the archipelago before the program could be carried out. The Japanese did not build up the fishery industry during their occupation, and submarine activity made fishing very difficult. Many of the fishing vessels were sunk, including every motorized vessel, and others fell into disrepair.

After the war, the Sea Fisheries Service was established as an agency of the government to carry out a fishery program. It plans to enlarge the fishing fleet; motorize fishing boats; establish a fleet of carrier vessels for sea transport from fishing areas to markets, and motor trucks for land transport of fish; establish processing plants for salting and drying fish; and make twine, hooks and other needs of the industry available.

The Sea Fisheries Service has two branches, one concentrating on improving fishing methods and techniques, and the other attempting to improve the economic and social status of fishermen. The operational arm of the service is the Sea Fisheries Institute.

Certain parts of the Indonesian Government's fishery program are already in operation, and will be continued by its own funds. The remainder it proposes to finance with ECA aid or through U. S. Export-Import Bank loans. This program anticipates an immediate increase of about 15,000 metric tons of fish annually, of which 8,100 tons would come from the motorized majang fleet, 4,900 tons from the tuna fleet, and 2,000 tons from use of two carrier vessels.

Expansion of Fishing Fleet: As one step in this program, the Economic Cooperation Administration has approved the Indonesian Government's request to buy 60 small motorized "majang" (local type) fishing boats and 100 new engines for this type boat at a cost of \$600,000. The purchase, ECA said, will be made in Japan which has been a principal supplier of these boats and engines.

The 60 new vessels being procured with ECA funds will be powered with 15- to 20-h.p. engines, enabling the fishermen to expand their fishing area and remain at sea for several days at a time.

The engines being procured with ECA funds are of 7, 15, and 20 h.p., some of which will be installed in 35-foot carrier vessels as an experiment. These carriers will collect fish from sailing vessels at sea. The experiment is to determine if the majang boats can increase their catch and remain longer at sea by transferring their fish to the carrier vessels. If the experiment proves uneconomical, these carrier boats are to be converted to majang fishing vessels.

Indonesia has boat-building facilities and has 62 more boats scheduled for domestic construction in addition to the 60 being bought from Japan.

It is planned that about half of the new boats will operate out of Djakarta, more than doubling the number of motorized fishing boats in this area. The rest will be allocated to the fishing ports of Surabaya, Semarang, and Pontianak by the Sea Fisheries Service of the Indonesian Government. The boats are to be sold to individual fishermen, or groups of fishermen organized into cooperatives, and the proceeds in local currency will be used to pay local costs of other Indonesian economic development projects.

The Sea Fisheries Service estimates that some 19,000 craft operated out of Java and Madura last year, compared with 32,000 before the war.

Catch in 1949: The nation's total catch in 1949 was 420,000 metric tons, compared with 472,000 tons in 1940. Fishing has increased, however, in Indonesia's lakes, rivers, swamps, and artificially-made ponds, which yielded 175,000 tons of last year's (1949) total catch—47,000 tons over the 1940 inland catch.

Exports in 1949: Indonesia's exports of fresh, salted, and dried fish in 1949 totaled less than 200 tons, compared with 4,000 tons before the war.

Consumption: Domestic consumption in Java, one of the lowest of any maritime country, was 7.9 pounds per capita in 1949, compared with 14.7 pounds in 1940. These figures do not include the fish consumed by the million fishermen, their families, and others who fish occasionally to obtain a part of their food supply. Many other maritime countries average 33 pounds or more of fish per person annually, and 66 pounds is not unusual.

Although only Java, with its 50 million people, is considered lacking in fish supply, the ECA survey estimated that more than a million tons of fish a year would be required to give the entire country an average of 44 pounds per person. The current consumption of fish by the country's population of about 72,000,000 is only about one-tenth that of the maritime countries of Northern Europe. The annual catch from the sea, currently, is less than 75 percent of prewar. Indonesian authorities, it was reported, believe that their fish development program can produce about 750,000 tons a year, which would be more than 50 percent above the 1940 catch.

Because of the large amount of funds required to finance such an expansion, however, the immediate goal is to equal the 1940 catch of 350,000 tons of salt-water fish.

Marketing: An auction-market system is used throughout Indonesia for selling the fishermen's catch. The market place may be owned by a municipality, or by a fishermen's cooperative organization. They charge a five percent commission. The cooperative movement is growing rapidly among fishermen, it is reported. The co-op owned markets use their commissions to make loans to fishermen to buy supplies or equipment, and even to provide such facilities as free medical service to their members. Some markets deduct ten percent from the gross sales and hold the amount in savings for the seller, giving it to him in a lump sum at the end of the year. Some finance the building of homes for fishermen on long-term payment plans.



Japan

FISHING INDUSTRY IN FINANCIAL STRAITS:^{1/} Investigations of the economic conditions of Japanese fisheries by SCAP's Natural Resources Section personnel show that the major portion of the industry is now facing a financial crisis, especially severe in the coastal fisheries which account for the bulk of the fisheries production. Unless these financial problems are overcome, the present upward trend of production will be reversed and many fishermen and cooperatives will be forced out of business.

A combination of factors is responsible for the present unfavorable financial condition of Japanese fisheries. Some of the most important of these factors are:

1. Lack of adequate reserves for operating expenses owing to the large expenditures required to replace facilities and equipment

^{1/} THIS WAS EXCERPTED FROM A MEMORANDUM ("FINANCING JAPANESE FISHING INDUSTRY," DATED NOVEMBER 6, 1950) PREPARED BY SCAP'S NATURAL RESOURCES SECTION FOR A VISITING UNITED STATES GOVERNMENT OFFICIAL. EXCERPTS APPEARED IN THAT AGENCY'S WEEKLY SUMMARY OF NOVEMBER 25, 1950.

- lost or damaged during the war years (World War II). The inflation and high taxes also contributed to the present shortage of reserve funds.
2. There has been a marked decrease in the catch per individual unit despite the fact that present total production compares favorably with prewar production in the same geographical area. The number of fishermen has increased by 20 to 50 percent since the Surrender.
 3. There has been a sharp increase in operating expenses owing to doubling and tripling of prices of fishing materials since the removal of government subsidies in April 1950.
 4. The price of fish paid the producer has decreased as a result of improvement of the over-all food supply situation during the past year. Lack of experience among new operators in selling on a free market (following a long period of controlled prices and distribution), resulting in inefficient marketing, has temporarily contributed to the decrease in price since government marketing decontrol in April 1950.

Inadequacies of the existing credit structure, which were discussed in detail in the memorandum, are briefed as follows:

1. A more adequate and realistic credit system is needed to enable fishermen to maintain or increase production. At present the Central Cooperative Bank for Agriculture and Forestry is the chief source of credit for the fishermen. Current policy of this and other lending institutions restricts practically all loans to short-term (one year or less) regardless of the purpose or use to be made of the funds. Such restriction has necessitated constant renewal of loans, excessive administrative costs on the part of the loaning institutions, and loss of credit resources through unavoidable delinquencies.
2. The high interest rates required by present loaning institutions result in extreme hardship and numerous delinquencies by fishermen. Interest rates paid on term savings deposits normally average 3 1/2 to 4 percent while interest rates charged on loans are 9 to 10 percent for short-term (one year or less). This operational margin of 4 or 5 percent, or more, used by financial institutions does not appear justified. Furthermore, interest rates are the same within the two general categories of short-term and long-term loans regardless of the risk involved in the enterprise, available security, or repayment plan. Such practice has handicapped the borrower of sound low-risk investment funds in that he must pay interest rates high enough to meet deficits developed from loans to high risk and questionable enterprises. Segregation of loans into categories ranging from "well secured" to "very high risk" should be established with varying rates of interest.
3. In the loaning of funds to fisheries, available security in the form of catch liens and facility mortgages have not been obtained. Such practice has in general weakened the entire credit system in fisheries.

The memorandum listed the funds required by cooperatives and federations for financing short-term (up to one year), medium-term (one to 10 years), long-term (over 10 years), and disaster or relief-type loans during the last half of the 1950 fiscal year¹ and for the 1951 fiscal year, as estimated by the Fisheries Agency, Ministry of Agriculture and Forestry, on the basis of reports from prefectural credit federations of fisheries cooperatives, as follows:

Estimates of Fisheries Financing Needs

Term	Amount in ¥1,000		Amount in U.S. \$	
	FISCAL YEAR			
	Last Half 1950	12 mos. 1951	Last Half 1950	12 mos. 1951
Short term (up to 1 yr.)	2,285,600	4,488,000	6,348,900	12,466,700
Medium term (1 to 10 yrs.)	2,436,000	6,387,000	6,766,700	17,741,700
Long term (over 10 yrs.)	220,000	507,000	611,100	1,408,300
Disaster and relief type	150,000	275,000	416,700	763,900
Total	5,091,600	11,657,000	14,143,400	32,380,600

The amount for medium term loans does not include approximately four billion yen (\$14,349,200) necessary for capitalization of fixed assets which the cooperatives have or will obtain by transfer from the former fisheries associations during 1950 and 1951, including certain necessary refinancing. Of the total loan requirements it is estimated that approximately 20 percent may be obtainable from local credit sources.

Two alternative plans for establishment of adequate credit at the national level are proposed in the memorandum: (1) reorganization of the administrative operations and expansion of resources of the Central Cooperative Bank for Agriculture and Forestry to meet approximately 80 percent of total needs for short-term, medium-term, and long-term loans; or (2) establishment of a new banking facility to handle all types of fisheries loans, not available from present local sources at reasonable interest rates. Either of the above plans will undoubtedly require the support of the central government in making available necessary capital at low interest rates from such funds as the Special Deposit Account, U. S. Counterpart Aid Fund Special Account, and direct government subsidies. Fisheries specialists of Natural Resources Section are of the opinion that the Central Cooperative Bank for Agriculture and Forestry can adequately handle the normal credit functions of the fishing industry for short-term, medium-term, and long-term loans if the present policy on terms of loans is changed and certain internal reorganization of operations is carried out. Furthermore, the financing of all three types of loans should be under the same administration in order to insure proper repayment schedules and utilization of loan funds.

The following recommendations are set forth in the memorandum:

1. The Central Cooperative Bank for Agriculture and Forestry should reorganize its administrative operations to conform with sound cooperative banking principles and change its policy regarding terms of loans to meet the needs of the fishing industry. The reorganization should include the providing of staff personnel with experience in fisheries operations and competent to analyze loan applications as to soundness and to provide some supervision to borrowers in carrying out a coordinated plan of repayment.

¹/ JAPANESE FISCAL YEAR, APRIL 1, 1950-MARCH 31, 1951.

2. If the Cooperative Bank cannot be reorganized in accordance with paragraph (1) above, a financing institution should be established for fisheries. If a separate bank is established, provisions should be made for short-term, medium-term, and long-term loans, which must be coordinated to insure realistic repayment schedules and proper utilization of loan funds.
3. Interest rates should be established on the basis of a varying scale according to soundness of loan, of risk involved, with the over-all average rates not to exceed 7 1/2 percent on short-term loans and 8 percent on medium- and long-term loans.
4. Disaster and relief type financing should be made available by direct government appropriation in accordance with actual need. Administration of such funds should not be under the general lending institution but under a separate government agency. Financing of this type should be made direct to individual fishermen.
5. Loans to cooperatives and federations should be made on the basis of the following:
 - (a) Analysis of loan application by qualified personnel indicates soundness of loan
 - (b) Repayment scheduled in accordance with the prospective income from the facility or enterprise and life of the facility, equipment, or materials being financed, and after thorough analysis of all outstanding obligations to be met.
 - (c) Available security should be taken in the form of catch liens and assignment of sales for short-term loans and as mortgages on facilities for medium and long-term loans.
 - (d) Medium and long-term loans should be based on stabilized security values with provision for refinancing during inflationary period.
 - (e) Cooperatives receiving loans should be required to submit regular and adequate financial statements, with annual audits by independent auditors.
 - (f) Restrictions regarding maximum capitalization of the banking institution should be sufficiently flexible to meet current normal needs of fisheries.

* * * * *

STATEMENT ON NEW FISHERY RESEARCH PROGRAM:^{1/} Fisheries research in Japan is conducted by the central government, the prefectural governments, universities, fishery colleges, and private fishing companies; similar organizations in the United States also conduct fisheries research, but those of Japan are on a much larger scale than is known in the western nations.

^{1/} A PRESS STATEMENT MADE BY DR. WILLIS H. RICH, VISITING EXPERT CONSULTANT, WHICH APPEARED IN THE DECEMBER 2, 1950, WEEKLY SUMMARY OF SCAP'S NATURAL RESOURCES SECTION.

In the past, the Japanese fisheries research program has been largely devoted to the improvement of fishing and processing methods and the development of new fisheries. The general effect has been to intensify exploitation. The Japanese have paid very little attention to the particular kinds of biological study that are of primary importance in conserving the resources upon which the fisheries industries depend for their raw material. In the western nations, on the other hand, the fisheries research programs, especially of the various governmental organizations, have been directed chiefly toward acquiring the information necessary to maintain the productivity of these resources. In the United States this approach to research has been a part of the great conservation movement that began about 50 years ago. The average American fisherman has learned the importance of fisheries conservation; he realizes that "conservation is wise use" and that without conservation his own future is jeopardized.

It is highly significant that Japan shows a growing realization of the importance of fisheries conservation and a strong trend toward developing the kind of fishery research that is of the greatest importance to the care and maintenance of the fishery resources. Information from this research in the field of fishery biology is absolutely essential if the resources are to be managed so as to provide continually the maximum yield. This change in emphasis in Japanese fishery research has been brought about very largely through the activities of the Fisheries Division, Natural Resources Section of SCAP, and the fine cooperation of officials of the Fisheries Agency of the Japanese Government.

One of the most important moves in this new development has been the establishment of eight regional fisheries research laboratories instead of one single central station which dominated the entire fisheries research program. This new organization has many advantages over the old system. The men working at the regional laboratories gain a more direct knowledge of the practical problems of the fisheries and work more closely with prefectural research men. They become much better acquainted with the methods of the fisheries they are studying, and they make a much closer contact with the fishermen and the men in the industry. All of these factors will help the research men to improve their research greatly and to adapt it better to the conditions and the needs of the fisheries. Another great advantage of the new system lies in the fact that the independence of the new regional laboratories provides an opportunity for the development of new methods and for closer and more friendly contacts among the members of the various staffs.

Japan's future as a great fishing nation will depend much upon the success of the new research program and even more upon the degree to which the need for scientific care of the fishery resources is accepted by administrators, legislators, and fishermen. Fishery research is designed to answer practical questions, but unless the results of research are translated into action it will serve no practical end. By regulations and education based on research, Japan can do much to maintain and improve the productivity of its own fisheries. But this alone is not enough; Japan should also take an active interest in the conservation of fishery resources the world over. None of the world's great fisheries is inexhaustible, and most fishery resources that have been exploited intensively show some effect of that exploitation. The new fishery research program will do much to develop in Japan a realization of the importance of proper care of fishery resources and will lead to better understanding and more cordial relations with the other important fishing nations of the world.

* * * * *

DIP NETS WITH LIGHTS USED IN SAURY PIKE FISHERY: Before 1948, the Japanese principally used drift nets in the saury pike fishery. However, since then most of the drift nets have been replaced by dip nets operated with lights, the December 23 Weekly Summary of SCAP's Natural Resources Section states.

Fishermen at Onahama report that, for an average month's operation, the catch per boat using dip nets with lights equals the catch of the same size boat using drift nets. However, the boats using a dip net and light operate only during the dark of the moon. Therefore, they remain in port an average of 10 nights per month. The drift nets operate each night for the full 30-day period per month, weather permitting. The operators state that the cost of operations and materials (nets) for the dip-net-and-light method is lower than for the drift-net method.

SPERM WHALING OPERATIONS OF 1950-51 ANTARCTIC WHALING EXPEDITION: The two fleets of the 1950-51 Japanese Antarctic whaling expedition completed sperm whaling operations on December 21, 1950. The fleets took a total of 409 sperm whales, produced 3,799 metric tons of sperm oil, and processed 1,402 metric tons of raw materials for food and industrial use.

On December 22, 1950, the first day of the baleen whaling season in the Antarctic designated by international agreement, the two fleets began baleen whaling operations.

* * * * *

ORDINANCE TO CONTROL SEA OTTER AND FUR-SEAL PRODUCTS: Action to prohibit and/or restrict the possession of fur seal and sea otter pelts and products manufactured therefrom will be strengthened by the Japanese Ministry of Agriculture and Forestry Ordinance No. 111 promulgated on October 13 and effective October 31, 1950.

The Ordinance provides for carrying out articles of the Law for the Control of Sea Otter and Fur-Seal Hunting. Principal action will be inspection of pelts and manufactured articles to determine whether such items have been procured in accordance with the Law. Legally-obtained pelts and manufactured items therefrom will be marked with an official tag. Illegally-procured pelts and products will be seized, and offenders will be subject to fines and imprisonment, according to the October 28, 1950, Weekly Summary issued by SCAP's Natural Resources Section.

JAPANESE GOVERNMENT



Netherlands

FISHING FOR HERRING FOR SALTING PURPOSES BANNED BECAUSE OF OVERSUPPLY: The Netherlands Fisheries Control Board has placed a ban on fishing for herring for salting purposes, a November 17 American consular dispatch from The Hague states. Fishing vessels at sea, however, were allowed to complete their catch. Fishing for fresh herring does not come under the ban.

In November, the 1950 catch of salt herring totaled about 500,000 barrels (50,000 metric tons), most of which are in stock. The 1949 catch amounted to 425,000 barrels (42,500 metric tons). The season's large catch together with the fact that the late season catch was of poor quality are the reasons given for the ban. Normally the fishing of herring for salting ends about the end of November or the first week in December.

Officials of the Fisheries Control Board expressed the opinion that markets would be found at normal prices for present stocks of salted herring.

Norway

NORWEGIAN RESEARCH VESSEL SEEKING EARLY WINTER HERRING SHOALS: In search of early winter herring shoals off the Norwegian coast, the fisheries research vessel G. O. Sars recently left Bergen, the Norwegian Information Service announced on December 21, 1950.

The fisheries consultant directing the expedition told the press that hardly anything is known concerning the whereabouts of the herring in the period between September and January-February. This is the first attempt of its kind ever made, he states.

Late last summer Norwegian fishermen, vainly trying their luck in Icelandic waters, were tipped off by the Norwegian fisheries consultant that new herring shoals had been discovered about 60 sea miles southeast of the lonely island of Jan Mayen in the North Atlantic. It is reported that fishermen who went to the new location and fished returned to Norway with capacity hauls. With these good results in mind, the Norwegian Iceland Fishermen's Association has named a committee to report on recommendations for processing and marketing of the herring due to be caught off Jan Mayen in 1951.

HERRING PRICES FOR 1951 PROPOSED: The Norwegian Ministry of Finance and the Board of Norway's Herring Sales Organization have approved proposals for State-guaranteed herring prices during the 1951 fishing season. The proposed prices, higher than last year's, are 17 kroner per hectoliter (\$1.19 per cwt.) for sloe herring and 14 kroner per hectoliter (\$0.98 per cwt.) for spring herring.

* * * * *

NORWEGIAN-SWEDISH SHRIMP DISPUTE^{1/} SETTLED: After months of negotiation, Norway and Sweden have signed an agreement settling the dispute concerning the rights of Swedish shrimpers in Norwegian territorial waters, according to a January 11 news release from the Norwegian Information Service. The agreement, which "regulates conditions of fishing in certain coastal waters belonging to Norway and Sweden," must be ratified by the Swedish and Norwegian Parliaments before it becomes effective.

According to the terms, Swedish fishermen will be permitted to fish in specific waters of the outer Oslofjord. The same rights will be granted Norwegian fishermen in Swedish waters off the coast of northern Bohuslan province. Swedish and Norwegian fishermen, plying their trade in waters belonging to the other country, will have to comply with all laws and regulations applicable to fisheries in those waters. Each nation will have full police and jurisdictional authority over fishermen from the other country, while they are in that nation's waters. The agreement also specifies what type of gear may be used by Norwegian and Swedish fishermen, respectively.

1/ SEE COMMERCIAL FISHERIES REVIEW, OCTOBER 1950, PP. 68-9.



Pakistan

REQUESTS FAO TECHNICAL AID ON FISHERIES: Pakistan has asked for technical advice from FAO on 26 programs, and included among these is one for fisheries, according to a December 6, 1950, American consular dispatch from Karachi. A greater part of the expenditures for the experts to be supplied for the contemplated programs will be borne by the Food and Agriculture Organization. Pakistan will be required to furnish only their board, lodging, and transportation within the country.

Portugal

STATUS OF SARDINE INDUSTRY: After a two-year period of absence, the sardines off the Portuguese coast made their reappearance at the end of July 1950. This promised to end the severe economic hardships caused to the fishing and canning industry by the shortage of sardines, a December 22 American consular dispatch from Lisbon states.

Owing to the small catch of sardines, Portugal had discontinued importation of tin plate in May 1949. Since there is no domestic production, shortly after the reappearance of the sardines an effort was made to acquire tin plate. The agreement to supply the United Kingdom with half a million cases of sardines (which has been completed) had no provision for supply of tin plate. Orders from France for tin plate were not filled, and United States mills were not able to supply any even at sharply increased prices.

The Economic Cooperation Administration authorized and made available to Portugal \$433,000 and later \$1,367,000 for the purchase of tin plate in the United States of 2,500 and 6,500 tons, respectively (a total of 9,000 tons for \$1,800,000) at \$200 per ton. However, to date no purchases of tin plate have been reported.

Since the latter part of November 1950, the sardines seem to have again disappeared off the Portuguese coast, with the result that the catch towards the end of 1950 was sporadic and canning and exports were greatly reduced.

Studies for the expansion of Portuguese sardine exports to the United States have been continued and the following suggestions have been considered by the Portuguese Office of Fishery Studies:

1. Grouping of numerous separate shipments to the United States to expedite inspection.
2. Publicity for the marketing of other than skinless and boneless sardines in olive oil; and more attractive labels.
3. Attempting to compete with Norwegian spratt and brisling packed with a large number of fish to the can in inferior oils but in attractive Norwegian-made aluminum cans, and which sell at lower prices than the Portuguese canned sardines. (Portuguese experiments with aluminum containers for sardines have not been successful in the past, according to a Portuguese official, but in light of the Norwegian success they might be resumed).
4. In shipping to the United States in containers of American tin plate, a waiver of part of the American duty on the containers might be obtained as well as an exemption on the Portuguese export tax. (At the moment, however, the Portuguese importer is so concerned with obtaining tin plate that he has not attempted to take advantage of any such possibilities).

Inasmuch as Portugal did not devalue as much as Great Britain, the former is at a disadvantage in selling its sardines in the sterling areas. Although Great Britain is looking towards Morocco, Yugoslavia, and Japan where more favorable exchange rates can be found, there is no indication that Great Britain will reduce imports of Portuguese sardines.

NORTH SEA CONVENTION RATIFIED BY PORTUGAL: Portugal joined the ratifying nations of the North Sea Convention on July 13, 1950, and the provisions of that Convention were incorporated into and published as Portuguese Decree-law No. 37:983 on September 26, 1950.

Portugal was one of the 12 participating countries in the 1946 London fisheries conference which drew up the "Convention of April 5, 1946 Governing the Fixation of the Mesh-size of Catching Equipment and Size Limits of Fish" (the so-called "North Sea Convention" whose principal purpose was the formulation of measures against over-fishing in the North Sea).

* * * * *

THIRD FISHING CONGRESS HELD: The Third National Fishing Congress convened in Lisbon during December 12-18, 1950, in the presence of the President of the Republic, the President of the Council, the Ministers of Marine, Finance, Public Works, Economy, Colonies and Corporative Bodies, and the Director General of the Marine. The Second Congress was held in 1947.

The work of the Congress was divided as follows: fishing off metropolitan Portugal; other fishing; and fishermen. Discussions in the first two phases were concerned with the problems of the salt-water, river, and sport fishing industries; and also included discussions of naval construction, fishing ports, importation and exportation of salt-water fish, insurance, cooperatives, fishing laws, scientific methods of fishing, refrigeration, taxation, distribution, and marketing. The third phase (fishermen) was principally concerned with social welfare problems, and comprised studies of the living conditions of fishermen, schools, homes and federal housing, cooperatives and mutual assistance, maternity care, nurseries, youth centers, children's vacation camps, hospitals and asylums, collective work contracts, insurance, churches, agriculture, and economic capacity.



Somalia

PROPOSED FISHERIES DEVELOPMENT: In its capacity as administrator of the Territory of Somalia in eastern Africa under United Nations trusteeship, the Italian Government submitted certain proposals to the ECA Mission in Italy, requesting technical assistance in certain specified fields (including fisheries). Two agricultural experts of the ECA Mission in Italy visited Somalia and on September 8, 1950, after examining conditions in that country, submitted a "Preliminary Report on Somalia Agricultural Projects," which included a report on Somalia's fisheries.

The experts in their report on the fisheries project application of the Italian Government pointed out that insofar as the development of local fishing industries in Somalia is concerned "there appear to be an abundance of fish and ample boats and gear to catch them. Such boats and gear may be primitive but the demand for fish is not sufficient to justify any change in the local industry." To their various inquiries, the experts received answers indicating that fish along the Somalia coast are very plentiful, including dentice and palombo, which are very popular in the Italian market. An Italian firm operates a fishing industry out of Mogadiscio and Merca and is apparently able to meet all local demands. This firm also owns a canning factory in north Somalia but at the present time is supplying local demand only as there are no exports. Local belief would indicate that there are sufficient sharks off Merca to create an industry for the extraction of liver oil. Although

there was some discussion concerning the revival of a fish canning industry and the expansion of this industry, with additional canneries to be constructed along the coast, the ECA experts stated that "the availability of fish in paying quantities must first be proved before any assistance can be considered for the construction of canneries."

It is clear that any fishing industry to be developed must sell its catch to countries outside Somalia, the report continues. At the moment it appears that efforts must be concentrated on other than canned fish.

The report also quotes Milo Moore, Fisheries Expert of ECA-Greece, who on July 25, 1950, prepared "A Review of Italian and Territorial Fisheries of Somalia." Moore, in his report, states: "it appears that Italy, as a maritime nation, can develop overseas fishing that will supply the needs of the Italian people. Indications are that fishing activities adjacent to the coast line of Italy are at present exploited to a point of maximum yield and it would not be advisable to encourage greater expansion of the industry here, as such efforts might be detrimental and cause a decline in the abundance of fish in future years." Moore also reported that since tuna sells for about \$250 per metric ton in Italy, it would seem that there is a possibility of developing a dollar market if fish can be caught in sufficient quantities. England, Germany, and France would also be good markets.

The ECA-Italy experts who visited Somalia believe that there is sufficient evidence to indicate the possibility of good fishing off the coast of Somalia and there appears to be little doubt that markets are available for the type of fish which can be caught even though these markets are thousands of miles away (Naples is approximately 2,700 miles from Mogadiscio). After the fish are caught, a problem will be presented in transporting the fish these great distances. "We do not believe that a vast expenditure should be made solely for the purpose of carrying on a research program, as tuna, anchovies, sardines, sharks, lobsters, and other species of food fish are already known to inhabit the waters of Somalia.

Italian officials expressed a desire for a modern tuna clipper from the Pacific Coast of the United States with a refrigeration capacity of 300 to 400 tons.

In view of the above, the experts' recommendations with reference to the fisheries project application by Italy for Somalia were as follows:

- "1. That a refrigerated boat of about 400-500 ton capacity, complete with trawl winch, small skiffs, nets, lines, and fishing equipment, be purchased in Europe either by building or by converting an existing vessel. A fisheries expert of ECA should assist in the selection of a suitable boat.
- "2. That the proposed fishing program in Somalia be essentially an action program with research carried out by two aquatic biologists or other qualified fisheries experts who should accompany the boat during fishing operations. As soon as a decision is made on the purchase of a boat, two experts, preferably from the United States Fish and Wildlife Service, should be recruited for the first voyage.
- "3. That the Italian Government enter into an agreement with a reliable, successful fishing company under which the company would furnish a captain to direct actual fishing operations,

a man especially trained in the handling of fishing gear, a man experienced in freezing and caring for fish, plus other personnel as may be required.

- "4. That a trip be made from Italy to the fishing grounds with the Italian Government paying all costs with the exception of the salaries of the men furnished by the company. The company to share in the profits of the load brought back to Italy after agreed-upon operating expenses have been deducted.
- "5. That after definite information has been obtained, efforts be made to encourage private enterprise to invest capital and expand the industry."



Spain

"PAIRS" EXPANDING FISHING OPERATIONS OFF NEWFOUNDLAND:^{1/} During the past two years, an ever-increasing number of Spanish "pairs" (Spanish system of drag-net fishing by two vessels) have been leaving their old fishing grounds off the Spanish, French, and Irish coasts and going further afield, particularly to the Newfoundland banks, states a December 29 American consular dispatch from Bilbao. These expeditions have met with such marked success that during this year's Newfoundland fishing season an estimated sixty "pairs" will make the trip from ports situated in the Bilbao district of Spain where most of the operators of this type of fishing are concentrated.

Several of the more important operators of fishing vessels of this type have recently indicated that they are now looking for ways to further augment their catch in those waters, particularly by cutting down on the travel time of the vessels. Whereas large trawlers need make only two trips a year back to Spain from the banks and can do so with relative speed, the pairs must return frequently due to their small storage capacity. Furthermore, their speed being markedly slower than that of the competing trawlers, they spend 10-15 days on the trip. Two methods of remedying this handicap are presently in process of evolution.

Two or more of the local operators are planning to send out motherships with the pairs to periodically gather up the catch of their own vessels and return to Spanish ports from time to time to dispose of it.

Another group is reported to be dickering with the French officials of Saint Pierre-Miquelon for rights to establish a storage depot on the former island which is conveniently situated near the fishing grounds. Under such an arrangement, the member vessels of this group of the fishing fleet would store up to 5,000 metric tons of fish on the island and these deposits would be drawn upon from time to time by a Spanish freighter chartered expressly for the purpose which would make periodic trips to and from Spain. Should such an arrangement as envisaged be concluded with the authorities of Saint Pierre, a considerable portion of the reportedly lucrative business of purveying the usual supplies and services to the vessels of the Spanish fishing fleet in that area would in all likelihood be transferred from Saint John's, Newfoundland, where it is presently done, to the Islands. This is particularly true due to the apparently more favorable location of the Islands and the greater ease with which Spanish fishing interests are able to obtain French foreign exchange as compared with foreign exchange for use in Canada and elsewhere in the dollar area.

^{1/} SEE COMMERCIAL FISHERIES REVIEW, JULY 1950, P. 51; MAY 1950, PP. 81-4.

Sweden

FOURTH WEST EUROPEAN FISHING CONFERENCE: The Fourth West European Fishing Conference was held in Goteborg on October 11, 1950, a January 3 American consular dispatch from that city reports.

Representatives of the nations interested in west European fishing were invited. This conference was chiefly held to prepare for the official fishing conference to be held in London in 1951. Representatives from the German West Zone were invited to and attended the Goteborg conference—the first time German representatives were present since before World War II.

One of the most important questions discussed by the forty members of the conference was that of the gradually reduced fish stocks in the North Sea. Various suggestions were made for the improvement of this condition, such as increasing the size of the net meshes, controlling the catches by way of country quotas, prohibition of fishing during certain periods, etc. The views appear to have differed and the delegates will now discuss this and other questions with their governments, pending further negotiations in London.

The hope was expressed at the conference that all countries would have signed the 1946 convention by 1951 before the London conference. This would make it possible for that conference to make important decisions in matters of interest.

It is understood that no important decisions were made at the Goteborg Conference, but questions were brought up which would be discussed in London.



Tunisia

TUNA FISHING INDUSTRY: Production, 1948: Tuna fishing has never been of great importance in the Tunisian economy. In 1948, the last year for which detailed statistics are available, only 120 metric tons of tuna were caught, of which 36 tons were exported. The over-all production of the Tunisian fishing industry for that year (including tuna) was 12,058 tons, of which 1,582 tons were exported. It is true that catches of tuna totaling over 2,000 tons (in 1904) have been made in past years but, until 1950, a constant downward trend in catches was evident (see table). This trend was, of course, aggravated by the disruption of the industry during World War II, a November 21, 1950, American consular dispatch from Tunis states.

Tuna Caught in Tunisian Waters, 1944-50						
1944	1945	1946	1947	1948	1949	1950
..... (in metric tons) 1						
175	253	199	115	120	65	432
1/ESTIMATED.						

Gear Used: Tuna fishing in Tunisia has been in the past and is done now primarily with "madragues" (large fixed-net installations), although negligible quantities are occasionally caught with lines. These madragues are installed in fixed positions on the coast line or on nearby islands. Each one consists of a line of nets extended perpendicular to the coast for a distance varying from a few hundred meters up to three kilometers (approximately 656 to 9,840 feet). At some point along this line of nets (usually near the offshore end), there is an opening through which the fish, searching for a passage through the obstruction, pass into the "corpo" (a box-like net arrangement) where they are trapped until the fishermen raise the nets in the corpo and transfer the fish into boats and lighters. Madragues are usually associated with "thonaires" or processing plants of varying size on the shore nearby.

Present Status of Industry: In 1943, upon the liberation of Tunisia by Allied troops, tuna fishing facilities were in a lamentable state. In 1939 there had been five madragues in operation, four on the north coast of Tunisia and one on the east coast. By the end of the Tunisian campaign, however, installations had been seriously damaged and none of the madragues operated in 1940, 1942, or 1943 but one or two obtained a limited catch in 1941; only one madrague operated during the 1944 season. This was the madrague at Sidi Daoud, which is generally regarded as possessing the best tuna fishing site in the country. In 1944 the Tunisian Government put it back into operation. To date no other thonaire or madrague has been reestablished.

On March 28, 1949, the Tunisian Government granted monopoly rights in the tuna fishing industry for a period of forty years to a private company. This company received all rights to operate the madragues and thonaire at the five sites active in 1939 as well as all rights at three other sites on the east coast which had been abandoned some time before 1939. In 1949 and 1950 only the one installation at Sidi Daoud was operated by the company, but the terms of the concession require the company to be operating at least three madragues (two on the north coast and one on the east coast) during the 1953 season. During the 1951 season the madragues at Sidi Daoud and Monastir will be operated. In excess of these three, the number of madragues operated will be at the discretion of the company.

The company is also required by the terms of the concession to utilize "the most modern methods of fishing." Particularly, it is required "to substitute for the traditional methods used until now in Tunisia the method known under the name of 'the Atlantic method' which is used in Morocco." In brief, this method appears to involve stronger nets of a considerably greater length which extend farther from shore. Otherwise the principle of the madrague appears unchanged.

Results of the 1950 Season: The 1950 season was the first season during which the "Atlantic method" was used in Tunisian waters. Since only the madrague at Sidi Daoud was utilized during the season, only this madrague was converted to the new method. The results were very good: the catch of tuna amounted to 432 metric tons while 164 tons of bonito (Euthynnus pelamys and Pelamys sarda) were also caught. Unofficially the 1949 tuna catch was estimated at 65 metric tons.

It is impossible to say at this time whether these results were obtained because of the superiority of the new method over the old or because of an exceptional migration of tuna. In view of the fact that one madrague has equalled the average catch of five madragues during the decade preceeding World War II, there is, nevertheless, considerable hope among local fishermen that the tuna fishing industry has been definitely revived.

Seasons: Tunisian coastal waters lie in the path of annual migrations of tuna (mostly Orcynnus thynnus) proceeding from the Atlantic toward the eastern Mediterranean in search of favorable spawning conditions. These fish normally pass eastward through Tunisian waters, appearing off the north coast about May 20 each year and finally disappearing from southern shores about July 1. Smaller quantities of them also pass westward through Tunisian waters between August 30 and the middle of October en route back to the Atlantic.

Processing: The thonaire at each madrague normally clean the fish and prepare them for sale in the fresh fish markets. Only a limited amount of tuna can be absorbed by local consumers as "fresh fish," however, and the canning of tuna fish is an industry capable of considerable expansion if more supplies of tuna fish become

available. There are, as yet, no canning plants installed at the thonaires. Consequently, the tuna fish are prepared at the thonaires for shipment to the fresh fish markets and then sent to one of the three canning plants located at Tunis.

The production of canned tuna fish in 1948 amounted to only 30 metric tons (out of 76 metric tons of tuna caught). No more recent statistics are available but it was reported in La Presse, August 16, 1950, that more than half of the 1950 catch (432 metric tons) was canned, which indicates that canned tuna production in Tunisia in 1950 (216 plus metric tons) was more than seven times as large as two years ago.^{1/}

The possibility of increasing the production of canned tuna fish is regarded optimistically by local authorities. The product is canned with abundant and excellent Tunisian olive oil and is easily sold in Tunisia and on the world market. The limit to present canning activity is said to be only the availability of the tuna fish.

Exports: In 1948 only 2.4 metric tons of canned tuna fish were exported with a value of 735,000 francs.^{2/} It is expected that a much greater quantity will be exported during 1950 as a result of the much larger catch.

^{1/} A LIMITED QUANTITY OF TUNA IS SMOKED OR DRIED, BOTH FOR LOCAL CONSUMPTION AND FOR EXPORT.
^{2/} ABOUT U. S. \$3,000.



Union of South Africa

SPERM OIL DEMAND AND PRICE INCREASE: A whaling company at Durban reports that as soon as the situation in Korea became serious the company was overwhelmed with orders for sperm oil from European buyers. The largest shipments were made to Germany, Holland, and Belgium, a December 18 American consular dispatch from Durban states.

Although this company reported early in 1950 large stocks of sperm oil, which it was endeavoring to dispose of on the world's markets at £55 (about \$153) per ton f.o.b. Durban, in December it was learned that their stocks had been completely exhausted. In addition, the entire production of the current Antarctic expedition has been contracted for by European buyers, the company stated. The price now being paid for sperm oil is approximately £70 (\$195) per ton f.o.b. Durban.



United Kingdom

UNRESTRICTED LANDINGS AT HUMBER PORTS ANNOUNCED: It was announced in mid-December 1950 that unrestricted landings at Humber ports would again be permitted after January 1 this year, and that all laid-up deep-sea trawlers at Grimsby and Hull were to return to sea with orders to catch to capacity. This decision was made at a meeting of the Humber Distant Water Trawlers Development Scheme, reports the December 23 issue of The Fishing News, a British fishery periodical. The meeting was called to consider the effect of the cut in the meat ration on the general food situation in Great Britain.

Regulated sailings and landings at the port of Grimsby and Hull for distant-water vessels were inaugurated in mid-July 1950.^{1/} The trawler owners have decided

^{1/}SEE COMMERCIAL FISHERIES REVIEW, SEPTEMBER 1950, PP. 57-8.

that there should be no deterioration in the standard of quality achieved since landing restrictions were imposed. Present minimum dockside prices are to remain unchanged.

* * * * *

SCOTTISH SEAWEED RESEARCH INITIATED: The Gulland Laboratory of the Institute of Seaweed Research was recently opened at Inveresk, Musselburgh, a suburb of Edinburgh, states a December 28 American consular dispatch from Edinburgh. The purpose of the Institute, which is sponsored by the Scottish Seaweed Research Association, is to discover processes for extracting chemicals from seaweed harvested on Scottish shores, and to ascertain uses for the chemicals so extracted. The new laboratory was designed primarily for the development of pilot-scale processes for the production of chemicals from seaweed. This will make possible the preparation of bulk samples of the chemicals which will be turned over to member firms of the Research Association for industrial assessment. Furthermore, it is hoped that sample production of these chemicals at the laboratory will permit estimates of industrial production costs to be made.

As a result of the efforts of the Association, an industry has already been established in exploiting agar and alginic acid. The industry now produces about £750,000 (\$2,100,000) worth of these chemicals annually.

There are many chemicals present in seaweed which are not being used at all and the Institute aims to find uses for them and to work out industrial production processes. It has been found that 200,000 tons of dry, brown seaweed are potentially available each year, and would be capable of yielding 30,000 tons of alginic acid, over 30,000 tons of mannitol, nearly 40,000 tons of laminarin, and over 5,000 tons of fucoidin. The seaweed also contains unknown quantities of proteins, fats, sterols, amino acids, and other chemicals. Mannitol could be converted into glucose, and fucoidin into sugar fucose. Laminarin is a chemical found only in seaweed and is being investigated for possible use as a blood plasma substitute or to replace talc as a surgical powder.

The Institute has been in existence only since 1944, operating with the assistance of government grants. In 1946, a five-year program was embarked upon, with the Government furnishing £127,000 (\$355,600), representing more than 90 percent of the cost of the research program. It has now been announced that the government will assume full responsibility for the work when the present program ends in June 1951. It is expected that the project will continue indefinitely, subject to further review in 1954. As a result of this action by the Government, the Seaweed Research Association as such will cease to exist in 1951. It is anticipated that the cooperation of scientists, engineers, and industrialists will continue in the Institute when it comes under government sponsorship.



Yugoslavia

EXPORTS OF FISHERY PRODUCTS ENCOURAGED: Yugoslavia will encourage the exportation of fishery products after local needs have been met, reports a December 29 American Embassy dispatch from Belgrade. Nevertheless, every effort will be made to increase exports, particularly of snails and frogs which are in demand on the world market. Soon an enterprise for fish exports will be established. Cooperatives supplying fishery products for export will receive 70 percent of the foreign exchange earned by their exports and will be permitted to use it to purchase fishing equipment from abroad.



FEDERAL ACTIONS



Department of Commerce

CODE ON IMPORT AND EXPORT CONTROLS PROPOSED AT RECENT SESSION OF GATT: Substantial relief for all foreign traders from uncertainties and undue hardships arising from operation of the present systems of import and export controls of various countries is the objective of a major recommendation adopted at the recent session of the Contracting Parties of the General Agreement on Tariffs and Trade (GATT) at Torquay, England, according to an announcement by the Office of International Trade of the Department of Commerce. This code of standard practices, which is based upon a proposal by the U. S. Delegation, in the light of experiences reported by American exporters to the Department of Commerce, was made public December 27, 1950, at Geneva, and released simultaneously in Washington.

The representatives of the 29 Contracting Parties participating in the session recommended that, unless there are clear and overriding considerations to the contrary, governments should whenever possible be guided by this proposed code in the application of their import and export licensing systems, exchange controls, and like measures.

Ultimate elimination of quantitative trade restrictions and exchange controls is one of the primary objectives of the GATT and of the International Monetary Fund. For so long as it is necessary that such measures be maintained, however, the representatives of the countries assembled at Torquay agreed that it is important to reduce the uncertainties and hardships to merchants resulting from varying and unpredictable operation of such controls.

They believed that if the following standard practices were adopted by governments whenever possible, they would make a valuable contribution to the fulfillment of the objectives of the General Agreement, without weakening the essential effectiveness of the measures of control. It was urged that, in addition to meeting the complaints of the traders, general adoption of such practices would also minimize the accumulation of international commercial debts, and would avoid abrupt interruptions in the flow of commodities between countries.

The standard practices in this field recommended by the Torquay Conference for general adoption are:

1. The grant of an import license should imply that the necessary foreign exchange will be obtainable if applied for within a reasonable time. When both import licenses and exchange permits are required, the operation of the two requirements should be coordinated. If more than one rate of exchange applies in payment for imports, the import license or exchange permit should indicate the type of exchange which will apply in the settlement of the particular transaction.

2. Any new or intensified restrictions on impor-

tation or exportation should not apply to goods shown to the satisfaction of the control authority to have been en route at the time the change was announced or to have been paid for in substantial part or covered by an irrevocable letter of credit.

3. Goods proven to have been covered by adequate confirmed prior order at the time new or intensified restrictions are announced, and not marketable elsewhere without appreciable loss, should receive special consideration on an individual case basis, provided their delivery can be completed within a specified

period. Such goods, as well as those covered under paragraph 2, should be accountable against any import or export quota or exchange allocation that may have been established for that particular class of goods.

4. The administrative formalities in connection with the issuance of import and export licenses or exchange permits should be designed to allow action upon applications within a reasonably short period. A license or permit should be valid for a sufficient period to allow for the production and delivery of the goods, taking into account the character of the goods and the conditions of transport from the country of origin. The control authorities should not withdraw licenses or permits unless they are satisfied that the exceptional circumstances necessitate such action, and should give sympathetic consideration to requests for renewal or revalidation of licenses or permits when exceptional circumstances prevent their utilization within the original period.

5. Under a system involving the fixing of quotas for particular classes of goods or of allocations of exchange in payment for them, any period that may be set, within which applications for such quotas of allocations must be made, should be sufficient to allow for the exchange of communications with likely foreign suppliers and the conclusion of purchase contracts.

6. When foreign products subject to quantitative

limitations are apportioned among importers largely in the light of their past participation in the trade, the control authorities, at their discretion and without undue prejudice to the interests of established importers, should give consideration to requests for licenses or permits submitted by qualified and financially responsible newcomers.

7. If an assurance regarding the issue of an import license is required as a condition of consular legalization of shipping documents in the country of exportation, a reliable communication giving the number of the import license should suffice.

8. The authority given to customs officials should be adequate to allow them, at their discretion, to grant reasonable tolerance for variations in the quantity or value of individual shipments as delivered from that specified in the prior import or export authorization, in accordance with the character of the product involved and any extenuating circumstances.

9. Where, owing to exceptional and unforeseen balance-of-payment difficulties, a country is unable to provide foreign exchange for imports immediately payment becomes due to the supplier, transfers of foreign exchange in respect of goods already imported or licensed for importation should have priority over transfers in respect of new orders, or should at least have a definite and equitable share of the total amounts of foreign exchange currently available for imports.

NATIONAL PRODUCTION AUTHORITY ^{1/}

COPPER PROHIBITED IN EXTENSIVE LIST OF LESS-ESSENTIAL ITEMS: To conserve copper vitally needed for defense, an order governing the use of copper in the manufacture of a wide range of products, starting March 1, was issued December 30 by the National Production Authority. Use of copper was prohibited in an extensive list of less-essential items (excluding repair parts) by Amendment 1 to Order M-12.

The order does permit the use of copper generally, however, "where it serves a functional purpose and where no practical substitute is available."

The fishing industry will note with interest that commercial fishing vessels receive the same consideration as other essential vessels in the permitted use of copper for "furnishings, fittings, and fixtures when located within the sphere of the magnetic compasses; and builders' hardware, building materials, and snap hooks where the properties supplied by copper are essential and satisfactory substitutes are not available." Also recognized is the need of copper for marine lighting fixtures and for commercial fishing equipment and supplies.

"This action was taken to provide copper for defense and defense-supporting needs," the NPA Administrator said. "Although everything possible is being done to increase production, there is not enough copper to meet our expanding defense needs and to supply all civilian demands."

The order provides copper cannot be used in certain less-essential items, but it does not forbid the manufacture of the article itself. In many cases manufacturers will be able to use substitute materials.

^{1/}COPIES OF REGULATIONS, NOTICES, PRESS RELEASES, ETC., ISSUED BY THE NPA ARE AVAILABLE FROM THE NATIONAL PRODUCTION AUTHORITY, DEPARTMENT OF COMMERCE, WASHINGTON 25, D. C., OR FROM DEPARTMENT OF COMMERCE FIELD OFFICES.

Manufacturers are permitted to complete and sell affected items if they were in the process of manufacture on or before March 1 and are completed not later than April 30. The order provides, through appeals procedures, for adjustments and exceptions where undue hardship occurs.

Contained in the order is a list (List A) of articles in which no form of copper may be used beginning March 1. The list includes items in the following categories: Builders' hardware, building materials, burial equipment, clothing and dress accessories, furniture and fixtures, hardware, home furnishings and equipment, household appliances, jewelry, gifts and novelties, miscellaneous articles, motor vehicles, and passenger transportation equipment.

Previous NPA actions designed to effect savings in the use of copper prior to March 1, remain in force. Manufacturers are permitted, during January and February, to use 85 percent of the average monthly amount of brass mill and wire mill products they used during the first six months of 1950, but they are permitted to use copper in foundry products at the same quarterly rate as they did during the first six months of 1950.

Parts of the text of the amendment to order M-12 of interest to the fishery and allied industries follow:

PART 29—COPPER AND COPPER-BASE ALLOYS

SUBPART B—USE OF COPPER AND COPPER-BASE ALLOYS

This amendment to NPA Order M-12, dated November 29, 1950, is found necessary and appropriate to promote the national defense and is issued pursuant to the Defense Production Act of 1950. In the formulation of this Order, there has been consultation with industry representatives, including trade association representatives, and consideration has been given to their recommendations. However, consultation with representatives of all trades and industries affected in advance of the issuance of this Order has been rendered impracticable due to the necessity for immediate action and because the Order affects a large number of different trades and industries.

This amendment affects NPA Order M-12 as follows: Paragraph (c) of § 29.23 is revised; a new § 29.27 is added and present §§ 29.27 through 29.33 are redesignated §§ 29.28 through 29.34; references to §§ 29.27 and 29.28 are changed to read "§ 29.28" and "§ 29.29", respectively, whenever they occur; a new § 29.35 List A is added.

As amended, Order M-12 is revised to read as follows:

- Sec.
29.21 What this subpart does.
29.22 Definitions.
29.23 Copper forms and products to which this subpart applies.
29.24 Application of subpart.
29.25 Production of brass mill products, copper wire mill products and foundry products.
29.26 Use of copper forms and products.
29.27 Use of copper in manufacture and construction.
29.28 Maintenance, repair and operating supplies.
29.29 Exemptions.

- 29.30 Inventories.
29.31 Applications for adjustment.
29.32 Records and reports.
29.33 Communications.
29.34 Violations.
29.35 List A.

AUTHORITY: §§ 29.21 to 29.35 issued under sec. 704, Pub. Law 774, 81st Cong. Interpret or apply sec. 101, Pub. Law 774, 81st Cong.; sec. 101, E. O. 10161, Sept. 9, 1950, F. R. 6105.

§ 29.21 What this subpart does. The purpose of this subpart is to describe how the copper remaining after allowing for the requirements of national defense may be distributed and used in the civilian economy. It is the policy of the National Production Authority that copper and articles made of copper, not required to fill rated orders, shall be distributed equitably through normal channels of distribution, and that due regard shall be given by suppliers to the needs of new and small business. It is the intent of this subpart that other materials which are not in short supply shall be substituted for copper and copper-base alloy wherever possible.

§ 29.22 Definitions. As used in this subpart:

- (a) "Person" means any individual, corporation, partnership, association or any other organized group of persons and includes any agency of the United States or any other government.
(b) "Base period" means the six-months period ending June 30, 1950.
(c) "Manufacture" means to put into process, machine, incorporate into products, fabricate or otherwise alter the forms and products of copper defined in § 29.23 by physical or chemical means, and includes the use of copper in plating.
(d) "Maintenance" means the minimum upkeep necessary to continue a building, machine, piece of equipment or facility in sound working condition, and "repair" means the restoration of a

building, machine, piece of equipment or facility to sound working condition when the same has been rendered unsafe or unfit for service by wear and tear, damage, failure of parts or the like: *Provided, however,* Neither maintenance nor repair includes the improvement of any such item with materials of a better kind, quality or design.

(e) "Operating supplies" means any copper or copper-base alloy forms or products listed in § 29.23 which are normally carried by a person as operating supplies according to established account; practice and are not included in his finished product, except that materials included in such product which are normally chargeable to operating expense may be treated as operating supplies.

§ 29.23 Copper forms and products to which this subpart applies. This subpart applies to the following forms and products of copper: Copper, copper-base alloy, brass mill products, copper wire mill products and foundry copper products and copper-base alloy products. For the purpose of this subpart, these items are defined as follows:

- (a) "Copper" means unalloyed copper. (It includes electrolytic copper, fire refined copper and all unalloyed copper in any form including scrap.)
(b) "Copper-base alloy" means any alloy in the composition of which the percentage of copper metal by weight equals or exceeds 40 percent of the total weight of the alloy. (It shall include fired and demilitarized cartridge and artillery cases, and all copper-base alloy, as specified above, in any form including scrap.) It does not include alloyed gold produced in accordance with U. S. Commercial standard CS67-38.
(c) "Brass mill product" means sheet, including strip and plate; rod, including bars, forgings (rough as forged), and ex-

truded shapes; wire; or tube, including pipe, made from copper or copper-base alloy. This does not include copper wire mill products.

(d) "Copper wire mill product" means bare wire, insulated wire and cable whatever the outer protective coverings may be, and uninsulated wire and cables, where the conductors are made from copper, copper-base alloy, or copper clad steel containing over 20 percent copper by weight. All copper wire mill products should be measured in terms of pounds of copper content.

(e) "Foundry products" means cast copper and copper-base alloy shapes or forms suitable for ultimate use without remelting, rolling, drawing, extruding or forging. (Includes the removal of gates, risers and sprues, and sandblasting, tumbling, or dipping, but excludes any further machining or processing.)

§ 29.24 *Application of subpart.* Subject to the exemptions stated in § 29.29, this subpart applies to all persons who produce brass mill products, copper wire mill products or foundry products as listed in § 29.23, or who use any of the forms and products of copper defined in paragraphs (a), (b), (c), (d), and (e) of § 29.23 for the purpose of manufacture, use in installation or construction, or for maintenance, repair or operating supplies. This subpart does not apply to persons who use copper or copper-base alloy in the production of other metals or metal alloys.

§ 29.25 *Production of brass mill products, copper wire mill products and foundry products.* Subject to the exemptions stated in § 29.29, or unless specifically directed by the National Production Authority:

(a) No person shall produce during the following months a total quantity by weight of brass mill products and copper wire mill products in excess of the percentages specified with respect to each month of his average monthly production of such products during the base period:

	Percent
January, 1951	85
February, 1951	85
March, 1951	80

(b) During the calendar quarter commencing on January 1, 1951, no person shall produce a total quantity by weight of foundry products in excess of 100 percent of this average quarterly production of foundry products during the base period.

§ 29.26 *Use of copper forms and products.* Subject to the exemptions stated in § 29.29, or unless specifically directed by the National Production Authority, no person shall manufacture, or use in installation or construction:

(a) During December 1950, a total quantity by weight of the forms and products of copper defined in paragraphs (a), (b), (c), (d) and (e) of § 29.23 in excess of 100 percent of his average

monthly use of such material in October and November 1950.

(b) During the following months a total quantity by weight of the forms and products of copper defined in paragraphs (a), (b), (c), and (d) of § 29.23 in excess of the percentages specified with respect to each month of his average monthly use of such material during the base period:

	Percent
January, 1951	85
February, 1951	85
March, 1951	80

(c) During the calendar quarter commencing on January 1, 1951, a total quantity by weight of foundry products in excess of 100 percent of his average quarterly use of such products during the base period.

§ 29.27 *Use of copper in manufacture and construction.* (a) Commencing on March 1, 1951, copper in the forms and products defined in § 29.23 may not be used in the manufacture of any item included in § 29.35 (List A) except as indicated therein; *Provided, however,* That any such items may be completed if they were in the process of manufacture on or before March 1, 1951 and such completion is effected not later than April 30, 1951, and any such items so completed may be sold after April 30, 1951.

(b) During each of the months of January and February, 1951, subject to the limitations on use in manufacture stated in § 29.26, no person may use in the manufacture of the items on § 29.35 (List A) a total quantity by weight of the copper forms or products defined in paragraphs (a), (b), (c) and (d) of § 29.23 in excess of 85 percent, or of the foundry products defined in paragraph (e) of said section in excess of 100 percent, of his average monthly use of such material during the base period.

(c) Any person who uses in construction any brass mill product as such for any item included in § 29.35 (List A) may not accept delivery of or use such product for this purpose after April 30, 1951.

(d) The following items included in § 29.35 (List A) shall be exempt from the application of this section if they are used on vessels other than pleasure craft: (1) Furnishings, fittings and fixtures when located within the sphere of the magnetic compasses; and (2) builders hardware, building materials and snap hooks where the properties supplied by copper are essential and satisfactory substitutes not available.

(e) Commencing on March 1, 1951, no person may use: (1) In the manufacture of any item, including components and parts therefor, a greater quantity or better grade of the copper forms and products defined in § 29.23 than is necessary for the functional operation of such items; or (2) any such copper forms or products for decorative purposes.

(f) The exemptions contained in § 29.29 relating to the filling of rated orders and the use of small quantities of copper forms and products are not applicable to the items included in § 29.35 (List A).

§ 29.28 *Maintenance, repair and operating supplies.* Unless specifically directed by the National Production Authority, during the calendar quarter commencing on January 1, 1951, and each calendar quarter thereafter, no person shall use for maintenance, repair and operating supplies a quantity by weight of the forms and products of copper defined in paragraphs (a), (b), (c), (d) and (e) of § 29.23 in excess of 100 percent of his average quarterly use for such purposes during the base period.

§ 29.29 *Exemptions.* (a) The production of brass mill, wire mill and foundry products is permitted to fill rated orders, or to meet any mandatory order of the National Production Authority, in addition to the production permitted by the provisions of § 29.25.

(b) Copper forms and products defined in § 29.23 acquired with ratings or to meet a National Production Authority scheduled program may be used in addition to the quantities permitted by the provisions of §§ 29.26 and 29.28.

(c) The provisions of §§ 29.25, 29.26 and 29.28 do not apply to persons who use less than 1,000 lbs. of the copper forms and products defined in § 29.23 during any calendar quarter; *Provided, however,* That persons who by reason of the provisions of § 29.26 would be permitted to use less than 1,000 lbs. during any calendar quarter, may use during such period a quantity up to 1,000 lbs.

§ 29.30 *Inventories.* In addition to the provisions of Part 10 of this chapter (NPA Reg. 1) relating to Inventory Controls, it is considered that a more exact requirement applying to producers of brass mill products, copper wire mill products and foundry products, and to users of the copper forms and products defined in § 29.23 is necessary.

(a) No person producing brass mill products, copper wire mill products or foundry products may receive or accept delivery of copper or copper-base alloy if his inventory is, or by such receipt would become, in excess of that necessary to meet his deliveries or supply his services on the basis of his scheduled method and rate of operation pursuant to this subpart during the succeeding 45-day period, or in excess of a "practicable minimum working inventory" (as defined in Part 10 of this chapter (NPA Reg. 1)), whichever is less.

(b) No person obtaining copper forms or products defined in § 29.23 for use in manufacture, installation or construction, or for maintenance, repair or operating supplies, may receive or accept delivery of a quantity of such forms and products if his inventory is, or by such receipt would become, in excess of that necessary to meet his deliveries or sup-

ply his services on the basis of his scheduled method and rate of operation pursuant to this Order during the succeeding 60-day period, or in excess of a "practicable minimum working inventory" (as defined in Part 10 of this chapter (NPA Reg. 1)), whichever is less.

(c) For the purposes of this section, any copper forms and products defined in § 29.23, in which minor changes or alterations have been effected, shall be included in inventory. Part 10 of this chapter (NPA Reg. 1) will apply to all such forms and products except as modified by this section.

§ 29.31 *Applications for adjustment.* Any person affected by any provision of this subpart may file a request for adjustment or exception upon the ground that his business operation was commenced during or after the base period, or because any provision otherwise works an undue or exceptional hardship upon him not suffered generally by others in the same trade or industry, or its enforcement against him would not be in the interest of the national defense or in the public interest. In considering requests for adjustment claiming that the public interest is prejudiced by the application of any provision of this subpart, consideration will be given to the requirements of the public health and safety, civilian defense, and dislocation of labor and resulting unemployment that would impair the defense program. Each request shall be in writing, shall set forth all pertinent facts and the nature of the relief sought, and shall state the justification therefor.

§ 29.32 *Records and reports.* (a) Persons subject to this subpart shall preserve the records which they have maintained of production, inventories, receipts, deliveries and uses of copper forms, and products defined in § 29.23 commencing with January 1, 1950.

(b) Persons subject to this subpart shall make records and submit such reports to the National Production Authority as it shall require subject to the terms of the Federal Reports Act (Pub. Law 831, 77th Cong., 5 U. S. C. 139-139F).

§ 29.33 *Communications.* All communications concerning this subpart shall be addressed to the National Production Authority, Washington 25, D. C. Ref: M-12.

§ 29.34 *Violations.* Any person who willfully violates any provisions of this subpart or any other order or regulation of the National Production Authority or willfully conceals a material fact or furnishes false information in the course of operation under this subpart is guilty of a crime and upon conviction may be punished by fine or imprisonment or both. In addition, administrative action may be taken against any such person to suspend his privilege of making or receiving further deliveries of materials or using facilities under priority or allocation control and to deprive him of further priorities assistance.

§ 29.35 *List A.* (See § 29.27.) The use of the forms and products of copper as defined in § 29.23 in the items listed under the descriptive sub-headings below (excluding repair parts) is prohibited except to the extent permitted by this order, or as specified on this list.

BUILDERS HARDWARE

Butts, hinges and related items.
Checking floor closers, overhead concealed semi-concealed and surface door closers (except gland nuts, regulating screw assemblies and fusible links).
Closers, hanging brackets for.
Closers, screen door.
Cabinet hardware, including cabinet hinges.
Hangers, track and related items including—
Sliding door hardware
Folding door hardware
Sliding—Folding door hardware
Folding Partition hardware
Upward Acting door hardware
Pin door hardware (except bearings and fusible links).
Locks and lock trim (except that brass mill products may be used for cylinder assemblies and keys, for essential working parts of locks and latches, for faces of locks and latches and for trim of cylinder lock sets).
Sash, screen, transom, casement hardware and shelf hardware items.
Spring hinges.
Sash balances.
Door holding devices.
Kick plates.
Push plates.
Door pulls.
Push bars.
House numbers.
Door knockers.
Letter boxes.
Nameplates.

BUILDING MATERIALS

Anchor and dowels (except safety anchors).
Bands on pipe insulation.
Bathtub enclosures and shower enclosures.
Blinds, including fixtures and fittings (except where essential for operating parts).
Caulking anchors.
Cement flooring and composition flooring (except that crude arsenical copper precipitate may be used for flooring in hospital operating and anesthesia rooms, for places where explosives are handled or stored and for places where explosive vapors may be present).
Chimneys and flues.
Conduits (except for instrument assemblies).
Cornices.
Door sills.
Door frames.
Doors.
Downspouts and accessories thereto.
Drains (except strainer grids for showers and urinals).
Drip pans.
Elevators and escalators (except for worm gears and parts necessary for conducting electricity).
Escutcheons and plates for floor, ceiling and wall.
Fences and gates.
Food waste disposal units (except for current carrying parts, bearings and controls).
Gratings.
Grids (except for flooring in hospital operating rooms and anesthesia rooms, and for places where explosives are handled or stored and for places where explosive vapors may be present).
Grilles and shields, including fresh air inlet boxes and radiator and convactor enclosures.

Gutters and accessories thereto.
Holdback hooks for curtains.
I. P. S. waste nipples.
Lavatory legs (excluding hospital types).
Leaders and accessories thereto.
Linoleum stripping.
Louvers.
Marques.
Metal siding.
Mouldings for joining cabinet sinks.
Ornamental metal work; including grille work, railings, and fittings.
Pipe, I. P. S. and fittings (except for industrial process piping, chemical gas equipment, underground water and gas service connections and except for solder nipples, solder bushing and ferrules).
Tube, tubing and fittings for interior piping systems or for lawn sprinkling systems. This restriction does not apply to the use of tube, tubing and fittings for underground water or gas service connections or for chemical gas equipment, and industrial process tube, tubing and fittings.
Radiators, covers and shields.
Railings and fittings.
Reglets, moulding and trim.
Rim protectors for fixtures.
Robe hooks.
Roofing.
Roofing nails (not including staples, clips and similar devices designed for the purpose of protecting shingles and siding against wind damage).
Shower curtain rods or bars (excluding hospital).
Shower door frames.
Shower goosenecks.
Skiylights.
Stair and threshold treads, nosing and edgings.
Store fronts.
Straps and hangers for pipe supports.
Supply pipes, I. P. S. for plumbing fixtures such as lavatories, sinks and water closets.
Switch plates.
Tanks for automatic storage water heaters.
Traps, (except tube traps in 20 gauge without cleanouts and except traps cast from secondary metal).
Thresholds, and saddles.
Towel bars and brackets.
Unit heaters, unit ventilators, unit ventilator inlet wall boxes, and convectors, space or local heaters, and blast heating coils, or any apparatus using such coils as part of its construction (except that copper or copper base alloys may be used for valves, controls, bearings or parts necessary for conducting electricity, for fans, and for water (except steam coils and headers)).
Ventilators.
Vents.
Weatherstripping.
Window frames.
Window sills.
Windows.

FURNISHINGS AND EQUIPMENT

Andirons, fireplace screens and fittings.
Candlesticks.
Curtain fasteners, rods and rings.
Cupboards.
Gas heater and stove installation connections (except parts essential for proper functioning).
Lamp shades.
Mops.
Mud scrapers.
Portable heaters (except electric portable heaters).
Scrubbing boards.
Stoves and ranges for household cooking use—gas (except for burner valves and oven thermostats and for oil reservoirs).
Stoves and ranges other than gas stoves and

1/THE ITEMS APPEARING UNDER THE FOLLOWING SUBHEADINGS IN THE ORIGINAL ORDER ARE NOT PART OF THIS
ABSTRACT: BURIAL EQUIPMENT; CLOTHING AND DRESS ACCESSORIES, NOT INCLUDING SAFETY EQUIPMENT;
FURNITURE AND FIXTURES; HOUSEHOLD ELECTRICAL APPLIANCES; JEWELRY, GIFTS AND NOVELTIES; PASSENGER
TRANSPORTATION EQUIPMENT.

ranges for household cooking use (except when the only copper products or copper base alloy products used are for valves, ferrules for compression fittings, controls, and parts necessary for conducting electricity or necessary for proper functioning).

Trays.
Upholsterers supplies, including nails and tacks.

Vases, pitchers, bowls, and artcraft (except laboratory).

Washing tubs and washing boilers.

Waste baskets, humidifiers and similar items.

MISCELLANEOUS

Alarm and protective systems (except when the only copper products or copper base alloy products used are for parts necessary for conducting electricity or where the use of such products is essential to the proper service or functioning of the parts).

Antique reproductions.

Arch supports.

Atomizers (except atomizers for medicinal purposes and for use in the preparation of dried milk and dried eggs).

Bars, boxes, cans, jars, and other containers.

Badges (except for use for identification and industrial security purposes).

Bar and counter equipment and fittings.

Barber shop equipment and supplies.

Barrel hooks.

Bathroom accessories (including grab bars, tumbler holders, tooth brush holders, paper holders, and shelf brackets).

Beauty parlor equipment and supplies (except for repair and replacement parts of commercial permanent wave equipment and commercial hair driers).

Beverage dispensing units and parts thereof (except for carbonators and except for self-contained drinking water coolers).

Bicycles, and similar vehicles and equipment thereof (except valves for bicycle tires and tubes).

Binooculars (except precision types) and opera glasses.

Bird and pet cages and stands.

Branding, marking, and labeling devices and stock for same (except engraved burning branding dies; and except where the devices and the stock are for affixing governmental, notarial and corporate seals).

Brushes (except for the types used in electric motors and generators; and except for industrial brushes).

Carpet rods.

Chimes and bells (except for any bells when the only copper products or copper base alloy products used are for parts necessary for conducting electricity and except for bells for use on board ship when the only copper products or copper base alloy products used are for parts necessary for conducting electricity or where the use of such products is essential to the proper functioning of the parts).

Chips, paper.

Cleaning and polishing accessories, such as brooms, carpet sweepers, crumpling rags, dust pans, mops, pot scourers, whisk brooms and floor and furniture polishers.

Clock cases (except for marine use).

Clothes line pulleys and reels.

Cocktail shakers.

Cooking utensils (except for commercial processing machinery).

Daubers for shoe polish.

Dispensers, hand, for hand lotions, paper products, soap and straws.

Flower pots, boxes and holders for same.

Fountain pens (except that copper products or copper base alloy products may be used

as an undercoating in the plating of outside functional parts and for clips).

Furniture grommets.

Garden tools and equipment (except that copper products or copper base alloy products may be used in parts necessary for functional parts).

Hair curlers, hair brushes and combs.

Ice cream freezers for use in the home.

Iron, bronze.

Juke boxes (except for copper products and copper base alloy products for conducting electricity).

Kitchen utensils, devices and machines (except electrical appliances).

Lace tips.

Lamps, portable electric (except that copper products or copper base alloy products may be used for parts necessary for conducting electricity and plating).

Lamps, other than electric (except when the only copper products or copper base alloy products used are for valves, controls, and wicks, and for burners for mantle type kerosene lamps).

Lanterns (except for functional parts).

Letter boxes and mail chutes.

Lighting fixtures (except for: (1) current-carrying parts, plating, rivets, eyelets, screws, small fasteners, (2) the threaded parts, clamping, sealing or attachment devices of exterior, explosion proof, dust tight and vapor tight fixtures, (3) Marine and airport).

Loose-leaf binders.

Manicure implements.

Match and pattern plates, matrices, and flasks.

Mattress buttons and furniture glides.

Name plates, not including instruction and data plates and not including identification plates for use on machinery or equipment.

Nonoperating or decorative uses of copper or copper base alloy, or the use of the same in such parts of installations and equipment (mechanical or otherwise) as bases, frames, guards, standards and supports.

Package handles and holders.

Pari-mutuel gambling and gaming machines, devices and accessories.

Pencils, mechanical (except that copper products or copper base alloy products may be used for the part or parts the function of which is to eject or retract the lead, and as an undercoating in the plating of outside functional parts).

Pins, (except when the only copper products or copper base alloy products used are for common or safety pins and except for laundry net and laundry identification pins or for safety catches on products otherwise permitted under this order).

Plating. The use of copper products or copper base alloy products for plating any article not on List A or excepted on that list, and the plating of parts (including repair parts) for such an article is permitted. Provided, That: (a) Such plating is not for decorative purposes, or part of a decoration. (b) The use of, or the normal wear on such article or parts would make impracticable any other form of coating for protective purposes or functional operation).

Pleasure boat fastenings and fittings.

Razors operated by electricity (except for repair parts and when the only copper products or copper base alloy products used are for functional parts and parts necessary for conducting electricity).

Razors not operated by electricity (except when the only copper products or copper base alloy products used in making safety

razors or parts are for heads, functional parts for head, and for plating, and, in making straight razors or parts are for rivets, pins and washers).

Razor blade magazines.

Reflectors (except photographic and except that copper products or copper base alloy products may be used as an undercoating or an overcoating in electroplating in connection with silvering or chromium).

Refrigerator display cases.

Slot, game and vending machines (except when the only copper products or copper base alloy products used are for tumblers for locks).

Soda fountain equipment (except for carbonators).

Sporting goods and equipment (except fishing equipment and supplies for commercial fishing use, ammunition, and except reel gears, bearings and spools, swivels and snaps, rod mountings and copper for plating of baits and lures for sport fishing use).

Staplers and stapler machines (not including foot-operated or power-driven stitching machines).

Stationery supplies:

Desk accessories.

Office supplies.

Pencils (except for ferrules).

Pens and penholders.

Statues and statuettes (except religious and artists' originals).

Sundials.

Tent poles and parts.

Tobacco pipes.

Toys (except copper in motors and essential operating parts).

Unions and union fittings (except seats, and except for other parts of unions and union fittings (1) where and to the extent that the physical and chemical properties of the liquid or gas passing through the union or union fittings make the use of any other material dangerous or impractical, or (2) where the valve is of a type designed for use in an air conditioning or refrigeration "system", or (3) where use of copper and tubing and/or brass pipe is permitted).

Umbrellas and parasols.

Vacuum bottles and jugs.

Valve handles (except plumbing fixture trim).

Walking sticks and canes.

Weather vane.

Weight reducing and exercising machines (except where copper products or copper base alloy products are necessary for electrical conduction).

Wool (except metal sponges intended for use in dairy products processing plants and by the canning industry and for filtering purposes).

This subpart as amended shall take effect on December 30, 1950.

NATIONAL PRODUCTION
AUTHORITY,

W. H. HARRISON,
Administrator.

[SEAL]

* * * * *

FURTHER STEPS TO CONSERVE TIN AFFECT USE OF METAL CONTAINERS AND TIN: Further steps to conserve tin to meet the requirements of national defense and to provide supplies for essential non-defense uses were taken on January 27 by the National Production Authority. Five orders (M-8 Amended, M-24, M-25, M-26, and M-27) were issued which permit the use of tin only in certain products, and limit its use in others. However, there are no restrictions under the new orders on the packaging of perishable foods. This action supersedes and amends the basic tin order (M-8) issued November 13 and amended December 18.

M-25, Metal Can Specification and Limitation Order: Of the orders issued, M-25 (dated January 27, 1951) specifically is of interest to the fishing and allied industries, especially to canners. No packer is permitted by this order to purchase, accept delivery of or use a can made in whole or in part of tin plate or terneplate for any purpose other than for packing products listed in Schedule I of the order. There are no restrictions on the packing of perishable foods. All fishery products that fall in this category as indicated by Schedule I will be allowed an unlimited pack. In addition, during the first quarter of 1951 there will be no reduction, below the first quarter 1950 or the first quarter 1949 base, in the pack of all other non-perishable agricultural products, except beer and pet food which will be allowed 90 percent of their first quarter 1950 or first quarter 1949 base.

The order permits can manufacturers and packers to use stocks in inventory or in process of manufacture on January 27. It also permits manufacturers to use until March 31, 1951, certain weights of tin plate and terneplate for soldered parts on cans where facilities for soldering blackplate are not available, to permit them to equip themselves for soldering blackplate.

Any person whose total use of cans for packing any product in any calendar year requires less than 250 base boxes (a base box equals 31,360 square inches) of tin plate or terneplate is exempt from the use limitation, but not from the plate specifications in the order.

The full text of order M-25 follows, except that only that part of Schedule I is given that lists fishery products:

PART 102—CANS

This order is found necessary and appropriate to promote the national defense and is issued pursuant to authority granted by section 101 of the Defense Production Act of 1950. In the formulation of this order there has been consultation with industry representatives, including trade association representatives, and consideration has been given to their recommendations. However, consultation with representatives of all trades and industries affected in advance of the issuance of this order has been rendered impracticable by the fact that the order affects a very substantial number of different trades and industries.

- Sec. 102.1 What this part does.
102.2 Definitions.
102.3 Restrictions on use of cans.
102.4 Other restrictions.
102.5 Restrictions on amount that may be packed.

- 102.6 Exceptions.
102.7 Certification of delivery of cans.
102.8 Application for adjustment or exception.
102.9 Records and reports.
102.10 Communications.
102.11 Violations.

AUTHORITY: §§ 102.1 to 102.11 issued under sec. 704, Pub. Law 774, 81st Cong. Interpret or apply Sec. 101, Pub. Law 774, 81st Cong. Sec. 101, E. O. 10161, Sept. 9, 1950, 15 F. R. 6105. Sec. 2, E. O. 10200, dated January 3, 1951, 16 F. R. 61.

§ 102.1 What this part does. This part places restrictions upon cans made of tin plate and terne plate. Schedule I sets out plate specifications for cans which vary according to the products packed. This part also limits the use of cans made of tin plate and terne plate. Cans made wholly of black plate are not restricted by this part. Part 23 of this chapter (Order M-24) permits the use of tin plate and terne plate for cans in accordance with the terms of this part.

Part 27 of this chapter (Order M-8) sets forth the specifications for solder that may be used in the manufacture of cans.

§ 102.2 Definitions. As used in this part:

(a) "Can" means any unused container made in whole or in part of tin plate, terne plate or black plate, which is suitable for packing any product. The term includes any container which has a closure or fitting, made in whole or in part of tin plate, terne plate or black plate, but does not include a glass container having such a closure or fitting. The term does not include fluid milk shipping containers.

(b) "Tin plate" means steel sheet coated with tin, and includes "primes", "seconds", and all other forms of tin plate, except waste and waste-waste.

(c) "Terne plate" means steel sheets coated with terne metal and includes "primes" and "seconds". The term does

not includeterne plate waste-waste, orterne plate waste. "Terne metal" means the lead-tin alloy used as the coating forterne plate, but does not include lead recovered from secondary sources which contains less than 1½ percent residual tin.

(d) "SCMT" means special coated manufacturers' terneplate.

(e) "Waste" means scrap tinplate andterneplate (including strips and circles) produced in the ordinary course of manufacturing cans, and tinplate andterneplate strips produced in the ordinary course of manufacturing tinplate andterneplate. The term also includes tinplate andterneplate parts recovered from used cans.

(f) "Waste-waste" means hot dipped or electrolytic tin-coated steel sheets or steel sheets coated with terne metal which have been rejected during processing by the producer because of imperfections which disqualify such sheets from sale as primes or seconds.

(g) "Blackplate" means steel sheets (other than tinplate orterneplate) 29 gauge (128 pounds) or lighter. The term includes can manufacturing quality blackplate (CMQ), "blackplate rejects", chemically treated blackplate (CTB), waste-waste, and waste.

(h) "Packer" means any person who uses cans for commercially packing any product.

(i) "Person" means any individual, corporation, partnership, association, or any other organized group of persons and includes any agency of the United States or any other government.

§ 102.3 *Restrictions on use of cans.* No packer shall purchase, accept delivery of, or use a can made in whole or in part of tin plate orterne plate for any purpose other than for packing products listed in Schedule I, and in accordance with the specifications set out in said Schedule I. The restrictions contained in this section and said Schedule I are subject to the exceptions of § 102.6. Schedule I is set out at the end of this part.

§ 102.4 *Other restrictions.* No person shall manufacture, sell or deliver any cans which he knows or has reason to believe will be accepted or used in violation of the terms of this part or any other order or regulation of the NPA.

§ 102.5 *Restrictions on amount that may be packed.* (a) The restrictions of this section do not apply to the packing of those products which are listed in Schedule I and preceded by a single asterisk. However, the restrictions of paragraph (b) of this section do apply to products preceded by a single asterisk if such products are re-packed from other containers.

(b) During the first quarter of the calendar year 1951 and each quarter thereafter, until otherwise ordered by NPA, no packer may accept delivery of or use for packing any particular product which is listed in Schedule I and

preceded by a double asterisk any cans, made in whole or in part of tin plate orterne plate, requiring more than 100 percent of the quantity by area of measurement of tin plate,terne plate and black plate which he used for packing that particular product during the corresponding quarter of 1949 or 1950. The amounts packed during each quarter shall be spread as equally as possible over each of the three months of such quarter, but no packer shall be required to take delivery of cans in less than carload lots to meet this provision.

(c) During the first quarter of the calendar year 1951 and each quarter thereafter, until otherwise ordered by NPA, no packer may accept delivery of or use for packing any other product which is listed in Schedule I any cans, made in whole or in part of tin plate orterne plate, by area of measurement requiring more than 90 percent of the quantity by area of measurement of tin plate,terne plate and black plate which he used for packing such product during the corresponding quarter of 1949 or 1950. The amounts packed during each quarter shall be spread as equally as possible over each of the three months of such quarter, but no packer shall be required to take delivery of cans in less than carload lots to meet this provision.

§ 102.6 *Exceptions.* (a) The plate specifications set out in Schedule I do not apply to the use of any cans which are in the inventory of a packer or in the inventory of a can manufacturer or in process of manufacture, or to tin plate orterne plate which was either in process at a tin mill, in the inventory of a tin mill for the account of a can manufacturer or in the inventory of a can manufacturer on the effective date of this part. It is the intent of this section that any tin plate orterne plate intended for use in the manufacture of cans in inventory or process as aforesaid shall be used notwithstanding the plate specifications of this part. However, the restrictions of § 102.5 are not excepted by this paragraph (a).

(b) Until March 31, 1951, 25 pound electrolytic tin plate or SCMT plate may be used in place of black plate for soldered parts on cans where facilities for soldering black plate are not available. This exception is provided to enable manufacturers to equip themselves to solder black plate.

(c) Any person whose total use of cans for packing any product in any calendar year requires less than 250 base boxes of tin plate andterne plate shall be exempt from the use limitations of § 102.5 but not from the plate specifications of Schedule I.

(d) Cans may be used to pack any product provided such product is not to be sold in the same or different form, but this does not permit the use of cans contrary to the provisions of this part for the purpose of aiding or promoting the sale of a product.

(e) (1) Orders having a properly ap-

plied DO rating are exempt from the use limitations of this part but not from the plate specifications.

(2) The restrictions in this part shall not apply to military requirements for cans of a special design or style not normally produced or used commercially, nor to cans for emergency rations and supplies for life boats.

§ 102.7 *Certification of delivery of cans.* No manufacturer shall sell or deliver cans unless he has received from the purchaser a certificate signed manually. This certificate shall be by letter in substantially the following form and, once filed by a purchaser with a manufacturer, covers all future deliveries of cans from the manufacturer to that purchaser:

To _____, manufacturer:
The undersigned purchaser certifies, subject to criminal penalties for misrepresentation, that he is familiar with Order M-25 of the National Production Authority, and that all purchases from you of items regulated by that order, and the acceptance of the same by the undersigned, will be in compliance with said order, and any amendments thereto.

§ 102.8 *Application for adjustment or exception.* Any person affected by any provision of this part may file a request for adjustment or exception upon the ground that his business operation was commenced during or after the base period, or because any provision otherwise works an undue or exceptional hardship upon him not suffered generally by others in the same trade or industry or its enforcement against him would not be in the interest of the national defense or in the public interest. In examining requests for adjustment claiming that the public interest is prejudiced by the application of any provision of this part, consideration will be given to the requirements of the public health and safety, civilian defense, and dislocation of labor and resulting unemployment that would impair the defense program. Each request shall be in writing and shall set forth all pertinent facts and the nature of the relief sought, and shall state the justification therefor.

§ 102.9 *Records and reports.* (a) Each person participating in any transaction covered by this part shall retain in his possession for at least two years records of receipts, deliveries, inventories, and use, in sufficient detail to permit an audit that determines for each transaction that the provisions of this part have been met. This does not specify any particular accounting method and does not require alteration of the system of records customarily maintained, provided such records supply an adequate basis for audit. Records may be retained in the form of microfilm or other photographic copies instead of the originals.

(b) All records required by this part shall be made available at the usual place of business where maintained for inspection and audit by duly authorized

representatives of the National Production Authority.

(c) Persons subject to this part shall make such records and submit such reports to the National Production Authority as it shall require, subject to the terms of the Federal Reports Acts (Pub. Law 831, 77th Cong., 5 U. S. C. 139-139P).

§ 102.10 Communications. All communications concerning this part shall be addressed to the National Production Authority, Washington 25, D. C. Ref.: M-25.

§ 102.11 Violations. Any person who willfully violates any provisions of this part or any other order or regulation of the National Production Authority or willfully conceals a material fact or furnishes false information in the course of operation under this part is guilty of a crime and, upon conviction, may be punished by fine or imprisonment or both. In addition, administrative action may be taken against any such person to suspend his privilege of making or receiving further deliveries of materials or using facilities under priority or allocation control and to deprive him of further priorities assistance.

NOTE: All reporting and record-keeping requirements of this part have been approved by the Bureau of the Budget in accordance with said Federal Reports Act.

This part shall take effect on January 27, 1951.

NATIONAL PRODUCTION
AUTHORITY.

(SEAL)

MANLY FLEISCHMANN,
Acting Administrator.

SCHEDULE I—CAN SPECIFICATIONS

Columns 2 and 3 specify the weights of tincoating per base box of tinplate and terneplate which may be used for the parts of cans for the products listed in column 1. Any packer may also use for packing a listed product blackplate cans or cans with a tin coating lighter than that specified for that

product. Wherever .25 lb. electrolytic tinplate is specified SOMT may be used. Tinplate menders arising in the production of electrolytic tin plate may be used without regard to the weight of coating for any purpose where .50 lb. electrolytic tin plate is permitted under this Schedule. Where menders arising cannot be used to replace .50 lb. electrolytic tin plate, they may be used to replace any electrolytic tin plate. When only a figure is given in columns 2 or 3 this means that tin plate may be used for the part and the figures given indicate the maximum weight of tin coating on each base box of plate. Reference is made to § 102.5 for restrictions on amount that may be packed and meaning of the asterisks preceding certain products.

CAN MATERIALS

Product	Soldered or welded parts	Non-soldered parts
(1)	(2)	(3)
<i>Fish and Shell Fish</i>		
140. *Abalone	.25	.25
141. *Anchovies	.25	.25
142. *Anchovies	.25	.25
143. *Caviar	.25	.25
144. **Chowder, all varieties:	.25	.25
Inside enameled cans	.25	.25
Plain body cans	1.25	.25
145. *Clams, processed	.25	.25
146. *Clam juice	.25	.25
147. **Codfish, salted, dry	.25	.25
148. **Crab, deviled	.25	.25
149. *Crabmeat, processed	.25	.25
150. *Crawfish	.25	.25
151. *Eels	.25	.25
152. *Finan haddie:	.25	.25
In round cans	.25	.25
In oval cans	1.25	.25
153. **Fish balls and cakes	.25	.25
154. **Fish frankfurters	.25	.25
155. *Fish and seafood, frozen or refrigerated	.25	.25
156. *Fish flakes and ground fish for human consumption only	.25	.25
157. *Fish livers	.25	.25
In reusable 5 gallon square cans	1.25	1.25
In non-reusable 5 gallon square cans	.50	.50
158. *Fish oil in 5 gallon square cans	.50	.50
159. *Fish paste	.25	.25
160. **Fish, pickled	1.50	1.50
161. *Fish roe	.25	.25
In round double seamed cans	.25	.25
In oval drawn cans	.50	.50
162. *Halibut	.25	.25
163. *Herring, in oil or brine (including sardines, pilchards and mackerel)	.25	.25

CAN MATERIALS

Product	Soldered or welded parts	Non-soldered parts
(1)	(2)	(3)
<i>Fish and Salt Fish—Continued</i>		
Round cans	.25	.25
14 drawn cans	.25	.25
34—piece cans	.50	.50
Oval, drawn or oblong (other than 14 drawn)	.50	.50
1.25 may be used for scored covers		
164. *Herring, in tomato or mustard sauce (including sardines, pilchards and mackerel):		
In oval drawn or oblong cans	.50	.50
1.25 may be used for scored covers		
165. Lobster:		
*Processed	.25	.25
**Newburg	.25	.25
166. *Menhaden	.25	.25
167. *Mullet	.25	.25
168. *Mussels	.25	.25
Fresh Shucked	.25	.25
Processed	.25	.25
169. *Oysters, processed	.25	.25
170. *Salmon:		
In round double seam cans	1.25	.25
In oval or drawn cans	.50	.50
171. *Scallops, processed	.25	.25
172. *Shad	.25	.25
In round double seam cans	.25	.25
In oval or drawn cans	.50	.50
173. *Shrimp, Processed	.25	.25
174. *Squid:		
In inside enameled cans	.25	.25
Plain body cans	1.25	.25
175. *Tuna	.25	.25
176. *Turtle	.25	.25
<i>Miscellaneous foods</i>		
238. Animal and pet food	.55	.25
240. *Baby food		
Fish base type	.50	.50
253. **Chop suey	1.25	.25
254. **Chow mein	1.25	.25
293. Soups, liquid:		
Seasonal from fresh vegetables only:		
Tomato, vegetable	1.25	.25
All other seasonal	.50	.50
**Nonseasonal:		
Black bean, bean with bacon	1.25	.25
Chicken with noodles or rice	.50	.50
All other nonseasonal	.75	.50
<i>Non Food Products</i>		
330. Oils (Industrial, vegetable)		
Animal or fish	.50	.50

Following is a brief summary of each of the other orders issued:

M-8 Amended: Except upon specific direction of NPA, no person is permitted, after March 1, to use pig tin, tin alloys, or other materials containing tin for purposes as listed in List A of the order.

All uses of tin not expressly authorized by NPA are prohibited and certification is required with all deliveries. The order permits the completion of the prohibited items, if they were in the process of manufacture on or before March 1, and completed prior to May 1, 1951.

M-24, Tin Plate and Terneplate: The order covers "specialty items" (listed in Schedule A of the order), including kitchen equipment, food preparation and cooking equipment, dairy pails and equipment, roofing, gutters, downspouts and fittings, roof flashing and fire doors, for which tin plate and terneplate may be used. It specifies the maximum coating of tin or terne metal permitted in each case, and re-

quires a certification of use by the purchaser prior to sale. It permits the use only of secondary tin in the manufacture of terne metal.

Tin plate and terneplate and reconditioned tin plate and terneplate may be used only for the purposes set forth in Schedule A, subject to the limitations, restrictions, and conditions specified in the Schedule.

The small manufacturer whose annual consumption of tin plate and terneplate is 100 base boxes or less may continue his present operation, if the items produced are not on the prohibited list (List A of M-8). Items on this list may be completed if they were in process of manufacture on or before March 1 and completed not later than April 30, 1951. (A base box equals 31,360 square inches.)

M-26, Tin Plate Closure Order: The use of tin plate closures, including bottle caps and jar lids, is permitted only in the packing of products specifically listed, and then only when tin coating of the lids and caps meets certain specifications that vary with the type of product. There are no restrictions on the number of closures that may be used.

Closures with a tin coating of not more than one-and-one-half pounds per base box are permitted for all food products, except malt beverages, if preserved in a hermetically-sealed container made sterile by heat. In the manufacture of home canning lids, no person is permitted to use any tin plate with a tin coating of more than half a pound per base box for top-seal lids, or in excess of one-quarter pound per base box for bands and jelly glass lids.

The order does not apply to any tin plate closures in the inventory of the packer or in the inventory of the manufacturer or in the process of manufacture on January 27, 1951.

M-27, Collapsible Tubes: The amount of tin that may be used in collapsible tubes is limited, the percentage varying with the products to be packaged in the tubes. Tubes used for some pharmaceuticals and for all food products for human consumption are not restricted in the percent of tin. No person is permitted to purchase, accept delivery of, or use collapsible tubes containing tin for the purpose of packaging products except as specifically permitted in Schedule A of the order. No person may use for any product a collapsible tube with a tin content greater than that used for packing the product on January 27, 1951. Purchasers are required to certify their compliance with the order before manufacturers are permitted to sell or deliver tubes.

No person may use in the manufacture of collapsible tubes during any calendar month more aluminum than 90 percent of the average monthly use of aluminum for this purpose during the period from August 1, 1950, through November 30, 1950. The order does not apply to tubes in inventory or goods in process of manufacture prior to January 27, 1951.

NOTE: COPIES OF M-8 AMENDED, M-24, M-25, M-26, AND M-27 ARE AVAILABLE FROM THE NATIONAL PRODUCTION AUTHORITY, WASHINGTON 25, D. C.

* * * * *

SUPPLY PROBLEMS OF STEEL SHIPPING CONTAINERS DISCUSSED: The problem of obtaining sufficient steel to manufacture steel shipping containers for defense and essential civilian needs was discussed at a meeting of NPA officials and representatives of the steel shipping container industry on January 11.

Industry spokesmen told NPA that some container manufacturers had already been forced to cut plant operations and some smaller plants may be forced to shut down entirely unless sufficient steel is made available.

Steel shipping containers are used primarily by the petroleum, chemical, and food industries.

NPA officials pointed out that persons holding defense orders were entitled to material necessary to fill the orders and NPA would aid in finding steel for such orders.

However, NPA officials said, an end use limitation order on steel shipping containers may be necessary to assure that defense and essential civilian needs are met. Industry members asked NPA to consider establishment of a pattern of essentiality before issuing such a limitation order.

Industry members also recommended establishment of a steel allocation program to meet increased defense rated orders and essential civilian needs, "as such needs could not be met on the basis of present steel availability."

Appointment of a task group to study the immediate and urgent problems facing the industry was made by NPA's Container and Packaging Division, upon recommendation by industry members.

The used steel drum and wood barrel reconditioning industry met on January 15 with NPA as an advisory committee to discuss problems facing the industry as a result of the expanding defense program. Principal problems of the industry, spokesmen said, are: (1) the difficulty of obtaining used steel drums and wood barrels; and (2) the shortage of steel rings and hoops, caustic soda for cleaning the containers, and phenolic resin used as interior and exterior coating.

SEVERAL ITEMS ADDED TO INVENTORY CONTROL LIST:^{1/} Several items were added to the list of materials which are subject to the anti-hoarding provisions of the Defense Production Act by the National Production Authority on January 11. Notice-1 (as amended January 10, 1951) with reference to designation of scarce materials was issued to cover the additions.

As a result of the recent additions, the list of items covered by the anti-hoarding provisions of Public Law 774 is virtually the same as that included in the inventory control regulation (NPA Regulation 1, issued September 18, 1950).

Items added to the anti-hoarding list today include: Industrial ethyl alcohol, chlorine, zinc dust and oxides, natural and synthetic rubber, and the following textile materials: burlap (hessian), cotton pulp, high tenacity rayon yarn, and nylon staples and nylon filament yarn.

^{1/}ALSO SEE COMMERCIAL FISHERIES REVIEW, JANUARY 1950, PP. 76-7; DECEMBER 1950, P. 62; AND NOVEMBER 1950, P. 83.

* * * * *

HARD FIBER CORDAGE CONTROLS APPEAR UNNECESSARY: Controls on the production and distribution of hard-fiber cordage appear unnecessary at this time, the National Production Authority announced January 30, following a meeting with members of the Hard Fiber Cordage Industry Advisory Committee.

According to the industry committee, both defense and civilian demands for their products are currently being met without difficulty.

The committee agreed with NPA officials, however, that in the event of a substantial increase in defense requirements, NPA should require the industry to reserve necessary amounts of hard-fiber cordage products to meet DO defense rated orders.

Types of hard fiber include: sisal, which is imported from Africa, Brazil, and Haiti; manila, which comes from the Philippines and Central America; and, henequen which is imported chiefly from Mexico.

Hard-fiber cordage products are important to the defense program and to certain industries such as commercial fishing, agriculture, transportation, oil and gas well drilling, commercial shipping, and public utilities. Among products in which these fibers are used are: rope, binder and baler twine, tying twine, some types of paper, padding for mattresses, furniture, and automobiles.



Defense Production Administration

REDELEGATES CERTAIN FUNCTIONS RELATING TO PRIORITIES, ALLOCATIONS, ETC.: The Defense Production Administrator redelegated to other agencies certain functions relating to priorities, allocations, and other operations now being carried on by these agencies under provisions of the Defense Production Act of 1950, a January 24 DFA news release announced.

This action, the first taken by the Administrator, follows the terms of Executive Order 10200,^{1/} which established the Defense Production Administration and gave its Administrator all powers over priorities, allocations, requisitioning, loans, purchasing, and certification of accelerated tax amortization included under the Defense Production Act.

The text of DPA Delegation No. 1 (corrected February 5, 1951) follows:

Del. 1

Corrected Copy
FEB. 5, 1951

DEFENSE PRODUCTION ADMINISTRATION

Pursuant to Executive Order No. 10200, issued January 3, 1951, certain of the functions conferred upon the Defense Production Administration by said Order are further delegated as follows:

1. The functions conferred upon the President by Title I of the Defense Production Act of 1950 are hereby delegated to the same officers and agencies to whom the said functions were delegated by Section 101 of Executive Order No. 10161 issued on September 9, 1950 (P. R. Doc. 50-8018), except as modified in the next succeeding paragraph of this delegation.

2. Those functions under Title I of the Defense Production Act of 1950 which were previously delegated to the Secretary of Interior by the Secretary of Commerce in National Production Authority Delegation No. 5 issued on December 18, 1950 (15 P. R. 9195) are hereby delegated to the Secretary of the Interior.

3. Each officer and agency to whom functions are delegated by this Delegation No. 1 shall, with respect to the materials and facilities within his particular jurisdiction as defined in the preceding paragraphs of this Delegation No. 1, continue to perform the claimant functions assigned to him by Sections 102 and 103 of Executive Order 10161.

4. Each officer and agency to whom functions are delegated by this Delegation No. 1 shall, with respect to the materials and facilities within his particular jurisdiction as defined in the preceding paragraphs of this Delegation No. 1, make recommendations to the Defense Production Administrator for the issuance of certificates by the Administrator for action under Sections 302 and 303 of the Defense Production Act of 1950 (loans, purchases, commitments, etc.) as specified in paragraph 2b of Section 2 of Executive Order 10200, and in Sections 303 and 304 of Executive Order

10161, as amended. Such officers and agencies shall perform such additional functions with respect to the issuance of such certificates as may be prescribed by any regulations or procedures which may hereafter be issued. This paragraph shall not be construed to limit or affect the authority of the Secretary of Agriculture under Section 303 of Executive Order 10161, as amended by Executive Order 10200.

5. Each officer and agency to whom functions under Title I of the Defense Production Act of 1950 are delegated shall, with respect to the materials and facilities within his particular jurisdiction, make recommendations to the Defense Production Administrator for the issuance of certificates under Subsection (e) of Section 124A of the Internal Revenue Code, as added by Section 216 of the Revenue Act of 1950, approved September 23, 1950, subject to any regulations and procedures which may here-

^{1/}SEE COMMERCIAL FISHERIES REVIEW, JANUARY 1951, PP. 78-80.

after be issued.

6. Each officer and agency to whom functions under Title I of the Defense Production Act of 1950 are delegated may, with respect to the materials and facilities within his jurisdiction, carry out the consultations referred to in subsection 708 (a) of that Act, and make recommendations to the Defense Production Administrator for the approval

of voluntary agreements and programs as provided in Section 708 of that Act.

7. Nothing in this Delegation No. 1 shall be construed to limit the right of redelegation and authorization of successive redelegation of any of the foregoing functions, pursuant to paragraph (b) of Section 902 of Executive Order 10161.

8. The functions delegated by the pre-

ceding paragraphs of this Delegation No. 1 shall be exercised subject to the direction and control of the Defense Production Administrator.

This delegation shall take effect immediately (January 24, 1951).

WILLIAM H. HARRISON,
Defense Production Administrator.



Economic Stabilization Agency

GENERAL CEILING PRICE REGULATION: The General Ceiling Price Regulation issued by the Economic Stabilization Agency on January 26 affects the fishing and allied industries since it imposes a temporary ceiling on prices of most fishery products and byproducts, except "fresh fish and seafood" and a number of other specific products. The Director of Price Stabilization formulated and will be directly responsible for the administration of this Regulation.

The wording of the General Ceiling Price Regulation as far as it affects fishery products and byproducts indicates that frozen, smoked, salted, canned, or any fishery products which are not considered "fresh fish and seafood," and most byproducts are frozen at the highest prices charged by a particular seller for each commodity during the period from December 19, 1950, to January 25, 1951. These prices become the particular seller's ceiling prices for all subsequent sales of the same commodities. However, methods are provided for establishing ceiling prices for "new commodities" which were not manufactured or produced during the indicated base period.

"Fresh fish and seafood" are exempt at all levels of production and distribution (producer, wholesaler, and retailer levels). Of the manufactured fishery products and byproducts, only the following are exempt from price ceilings: shark oil, whale oil, sperm oil, and cod oil.

Indirectly, of course, the fishing and allied industries also will be affected in various degrees by whether or not most of the supplies and materials used are under price ceilings. However, at present it seems that a large proportion of the supplies used by these industries are covered by the Price Regulation.

Since the complete text^{1/} of the General Ceiling Price Regulation is quite lengthy, only those parts which are of interest to the fishing and allied industries are quoted below. (The underscoring of the portions which specifically apply to fishery products or byproducts is by the editors of this publication.)

General Ceiling Price Regulation

JANUARY 26, 1951

TITLE 32A—NATIONAL DEFENSE, APPENDIX

Chapter II—Economic Stabilization Agency

GENERAL CEILING PRICE REGULATION

Pursuant to the Defense Production Act of 1950 (Pub. Law 774, 81st Cong.), Executive Order 10161 (15 F. R. 6105), and Economic Stabilization Agency General Order No. 2 (16 F. R. 739) this Gen-

eral Ceiling Price Regulation is hereby issued.

WHAT THIS REGULATION DOES

The purpose of the accompanying general regulation is to hold prices on a broad front. Accordingly, it covers the

^{1/}FOR COPIES OF THE COMPLETE TEXT OF THE GENERAL CEILING PRICE REGULATION (JANUARY 26, 1951) WRITE DIRECTLY TO THE ECONOMIC STABILIZATION AGENCY, WASHINGTON 25, D. C.

widest possible range of commodities and sellers. Manufacturers, wholesalers and retailers together with suppliers of services come within its terms. The intention has been to include within its scope all sellers of all commodities and services except to the extent that legal or strong practical reasons require that particular sellers or types of commodities be exempt.

Some exemptions are found provided in the Act itself. Thus, real estate is exempted by section 402 (e). That section of the Act also exempts professional services, materials furnished for publication by press associations or feature services, books, magazines, motion pictures, periodicals, newspapers, radio-broadcasting and television stations, outdoor advertising facilities, insurance, common carriers, public utilities, and margin requirements on commodity exchanges.

A number of commodities are excluded from the regulation for reasons of administrative impracticability. These include: stamps and coins; precious stones; paintings; antiques; used personal or household effects sold by the owner; and damaged, abandoned or confiscated property.

The regulation also excludes a number of agricultural and related commodities. Raw and unprocessed agricultural commodities when sold by the producer have been exempted, first, because the freeze technique is at present administratively impracticable when applied to sales by individual farmers, and, second, because the current prices of most such commodities are below the minimum price levels at which ceilings may be established under the Act. The further exemption of sales by farmers of farm-processed commodities in minor amounts is also dictated by administrative considerations.

Fresh fruits and vegetables and fresh fish and seafood, because of unusual marketing factors and seasonal and perishable characteristics, are subject to sharp and unforeseeable price fluctuations. Consequently, the imposition of a general freeze on these commodities would lead to capricious and inequitable price results. However, as soon as practicable, the Director of Price Stabilization will issue regulations for such commodities specifically adapted to these unusual factors.

The regulation employs the freeze technique. The highest prices charged by a particular seller for each commodity during the period from December 19, 1950 to January 25, 1951, become his ceiling prices for all subsequent sales of the same commodities. Methods are provided for establishing ceiling prices for new commodities or services not sold during this base period. These methods are designed to set ceiling prices for the new commodities which are directly in line with the ceiling prices established through sales in the base period. These new commodity pricing methods have been made as automatic as possible. However, where sellers are permitted, because they start handling a new category or a new business, to price their wares with reference to the ceiling prices of most closely competitive sellers of the same class, they are required to submit reports which will enable the Office of Price Stabilization to guard against abuse of this pricing formula. There is

a special problem in the case of some new wholesalers since previous experience under price control has demonstrated that intermediaries speculating in scarce goods inject themselves into the channels of distribution, multiplying the number of hands through which the goods must pass, and the number of markups added to basic costs. Such new intermediaries can be the source of a substantial amount of price inflation.

No general provision for the adjustment of individual hardship cases is included in the regulation. This is because it is virtually impossible to predict the specific types of hardship situations which an order of this scope may create and which can be relieved consistently with the effectuation of the fundamental stabilization objectives of the Defense Production Act of 1950. However, the Office of Price Stabilization will at a future date issue such provisions and standards for adjustment as may be necessary and proper under the statute.

There are two specific instances in which provision for relief is made. These situations involve, first, agricultural commodities or commodities processed or manufactured in whole or substantial part from agricultural commodities whose prices are at present below the standards set for them in the Defense Production Act of 1950, and second, certain sales of imported commodities.

The regulation makes special provision for certain importers, permitting them to pass on price increases for imported goods which they receive after January 26, 1951, pursuant to contracts entered into on or before that date. The purpose of this provision is to avoid interruptions in the flow of essential imported commodities, and the consequent reduction of supplies available for the defense program, as well as to avoid the damage to our relations with friendly nations that would result if importers canceled bona fide contracts. Once deliveries on existing contracts have been disposed of the importer's ceiling price reverts to the base level.

Opportunity will be afforded, through arrangements to be made by the Department of State, for consideration by the Director of Price Stabilization of the views of foreign governments regarding adjustments of ceiling prices of commodities which are of special concern to them.

FINDINGS OF THE DIRECTOR OF PRICE STABILIZATION

In the judgment of the Director of Price Stabilization the prices of commodities and services generally have risen and are threatening further to rise to an extent inconsistent with the purposes of the Defense Production Act of 1950.

In the judgment of the Director of Price Stabilization the objectives of Title IV of the Defense Production Act of 1950 cannot be attained by voluntary action by business, agriculture, labor and consumers or by taking action with respect to individual commodities and service.

In the judgment of the Director of Price Stabilization the ceiling prices established by this Regulation are generally fair and equitable and are necessary to effectuate the purposes of Title IV of the Defense Production Act of 1950.

So far as practicable the Director of

Price Stabilization gave due consideration to the national effort to achieve maximum production in furtherance of the objectives of the Defense Production Act of 1950; to prices prevailing during the period from May 24, 1950 to June 24, 1950, inclusive; and to relevant factors of general applicability.

In the formulation of this Regulation special circumstances have rendered impracticable consultation with industry representatives, including trade association representatives. However, prior to the formulation of this Regulation the Director of Price Stabilization has advised with a large number of persons representing a substantial segment of trade and industry concerning methods of checking inflationary trends.

GENERAL CEILING PRICE REGULATION

Section 1. *What this regulation does.* The purpose of this regulation is to establish ceiling prices for all commodities and services (except those specifically exempt) upon the basis of prices in effect during the period from December 19, 1950 to January 25, 1951, inclusive. This period is referred to as the "base period."

Sec. 2. *Applicability, effective date and prohibitions.*

(a) *Applicability.* The provisions of this regulation are applicable to the United States, its Territories and possessions and the District of Columbia.

(b) *Effective date.* This regulation is effective immediately.

(c) *Prohibitions.* After the date of this order, regardless of any contract or other obligation you shall not sell, and you shall not buy in the regular course of business or trade, any commodity or service at a price exceeding the ceiling price established by this regulation.

Sec. 3. *Ceiling prices for all sellers for commodities or services sold in base period.* Your ceiling price for sale of a commodity or service is the highest price at which you delivered during the base period to a purchaser of the same class. If you did not deliver the commodity or service during the base period, your ceiling price is the highest price at which you offered it for base period delivery to a purchaser of the same class. The offer must have been made in writing, but in the case of a retailer may have been made by display.

Sec. 4. *Manufacturers' ceiling prices for commodities falling within categories dealt in during the base period.*

(a) If you are a manufacturer of a commodity which you did not deliver or offer for delivery during the base period but which falls within a "category" in which you dealt during the base period, determine your ceiling price by applying to your current unit direct cost the percentage markup you are currently receiving on a "comparison commodity."

Your current unit direct cost for the commodity being priced and for the comparison commodity shall consist of the total unit direct labor and direct material cost for each. The comparison commodity must be in the same category as the commodity being priced; must be a commodity for which your ceiling price was determined under section 3; and must be of the commodities in that category with lower current unit direct costs, the one most nearly like the commodity being priced. If there is no commodity in the category having a lower current

unit direct cost, your comparison commodity is the one with the same or higher current unit direct cost which is most nearly like the commodity being priced. If you are no longer manufacturing any commodities which meet the above standards for a comparison commodity, the commodity which you dealt in during the base period, in the same category, which is most nearly like the commodity being priced is your comparison commodity, but the current unit direct cost of the base period commodity must be computed by using current material prices and wage rates.

(b) To determine your ceiling price you ascertain the percentage markup for the comparison commodity by comparing its current unit direct cost with its ceiling price. You determine your ceiling price on the new commodity by applying this markup to your current unit direct cost for the new commodity. The ceiling price so determined remains your ceiling price on all subsequent sales.

(c) Category means a group of commodities which are normally classed together in your industry for purposes of production, accounting, or sales. You are required by section 16 of this regulation to prepare a list of your categories and in applying the pricing provisions of this section, you should refer to this list. You might, for example, have a category such as one of the following: glass containers; fractional horsepower motors; brass mill products; millwork; print cloth yarn fabrics; screw machine products; ball bearings; textile machinery; women's and men's houses; house and barn paints; motor oils.

Sec. 5. *Wholesalers' and retailers' ceiling prices for new commodities falling within categories dealt in during base period.* (a) If you are a wholesaler or retailer and wish to determine a ceiling price for a commodity which you did not deliver or offer for delivery during the base period, but which falls within a "category" in which you dealt during the base period, you determine your ceiling price by applying to your net invoice cost the percentage markup you are currently receiving on a "comparison commodity."

The comparison commodity must be in the same category as the commodity being priced; must be a commodity for which your ceiling price was determined under section 3; and must be, of the commodities in that category with lower costs, the one most nearly like the commodity being priced. (If you have no commodity in the category with a cost below that of the commodity being priced, your comparison commodity is the one with the same or higher cost which is most nearly like the commodity being priced.) The percentage markup of the comparison commodity must be determined with reference to your most recent net invoice cost for that commodity. The ceiling price so determined remains your ceiling price for all subsequent sales of that commodity.

(b) Category means a line of merchandise, a merchandise department, or a group of commodities which are normally classed together in your trade for selling, buying, merchandising or accounting. You are required by section 16 of this regulation to prepare a list of your categories and in applying the pricing provisions of this section you

should refer to this list. You might, for example, have a category such as one of the following: men's clothing; men's furnishings; infants' wear; canned fruits; cosmetics and toiletries; frozen foods; notions; musical instruments; women's coats and suits; cotton piece goods; major household appliances; women's house dresses; office furniture; hand tools.

Sec. 6. *Ceiling prices for commodities in new categories; for new services; and for new sellers.* (a) If you are pricing a commodity which is in a different category from any dealt in by you during the base period or if you are selling a service which cannot be priced under section 3, your ceiling price is the same as the ceiling price of your most closely competitive seller of the same class selling the same commodity or service to the same class of purchaser.

Once you have determined your ceiling prices under this section you may not redetermine them. Before selling any commodity or service for which you have determined a ceiling price under this section you must file the report required in paragraph (b) with the Director of Price Stabilization, Washington 25, D. C., and in addition you must observe the following requirements:

(1) If you are a manufacturer, you may not sell the commodity until ten days after mailing your report; thereafter you may sell the commodity at your proposed ceiling price unless and until notified by the Director of Price Stabilization that your proposed ceiling price has been disapproved or that more information is required.

(2) If you are a wholesaler, you may not sell the commodity until thirty days after mailing the report; thereafter you may sell the commodity at your proposed ceiling price unless and until notified by the Director of Price Stabilization that your proposed ceiling price has been disapproved or that more information is required.

(3) If you are a retailer or are selling a service, you must prepare and maintain for the commodities or services being priced under this section the records required of you under section 16. You may begin sales of the new commodities and services as soon as you have prepared these records and mailed the required report to the Director of Price Stabilization, Washington 25, D. C., and may continue to sell them unless and until notified by the Director of Price Stabilization that your ceiling prices have been disapproved or that more information is required. If, as a retailer, you feel that because of the large number of new commodities which you propose to sell, an item by item price comparison would be too burdensome, you may apply to the Director of Price Stabilization for an alternative method of establishing ceiling prices. Your application should contain the information required in paragraph (b) together with a complete statement of the formula proposed and your reasons demonstrating that it will result, on the average, in ceiling prices no higher than those of your most closely competitive sellers. In such a case you may not begin sales of any commodity with reference to which the application has been made until the Director of Price Stabilization has fixed a method for establishing your ceiling prices.

(b) together with a complete statement of the formula proposed and your reasons demonstrating that it will result, on the average, in ceiling prices no higher than those of your most closely competitive sellers. In such a case you may not begin sales of any commodity with reference to which the application has been made until the Director of Price Stabilization has fixed a method for establishing your ceiling prices.

(b) *Required report if you are pricing under this section.* Your report should state the name and address of your company; the new categories in which the commodities fall and the most comparable categories dealt in by you during the base period; the name, address and type of business of your most closely competitive seller of the same class; your reasons for selecting him as your most closely competitive seller; a statement of your customary price differentials; and, if you are starting a new business, a statement whether you or the principal owner of your business are now or during the past twelve months have been engaged in any capacity in the same or a similar business at any other establishment, and if so, the trade name and address of each such establishment. Your report should also include the following:

(1) If you are a manufacturer: Your proposed ceiling price and the specifications of the commodity you are pricing; the manufacturing processes involved; your unit direct costs; and the types of customers to whom you will be selling.

(2) If you are a wholesaler: Your proposed ceiling price and your net invoice cost of the commodity being priced; the names and addresses of your sources of supply, the function performed by them (e. g., manufacturing, distributing, etc.), and the types of purchasers to whom they customarily sell; the types of customers to whom you plan to sell; and a statement showing that your proposed ceiling price will not exceed the ceiling price your customers paid to their customary sources of supply.

(3) If you are selling a service: Your proposed ceiling price and a description of the most comparable service delivered by you during the base period showing your present direct labor and materials costs and ceiling price for it.

Sec. 7. *Sellers who cannot price under other sections.* If you are a seller that you are unable to determine your ceiling price for a commodity or service under any of the foregoing provisions of this regulation (which, in the opinion of the Director of Price Stabilization, provides adequate pricing instructions for virtually all transactions), you may apply in writing to the Director of Price Stabilization, Washington 25, D. C., for the establishment of a ceiling price. This application shall contain an explanation of why you are unable to determine your ceiling price under any other provision of this regulation; all pertinent information describing the commodity or service, the nature of your business; your proposed ceiling price and the method used by you to determine it; and the reason you believe the proposed price is in line with the level of ceiling prices otherwise established by this regulation. You may not sell the commodity or service until the Director of Price Stabilization, in writing, notifies you of your ceiling price.

Sec. 8. *Modification of proposed ceiling prices by Director of Price Stabilization.* The Director of Price Stabilization may at any time disapprove or revise ceiling prices reported or proposed under this regulation so as to bring them into line with the level of ceiling prices otherwise established by this regulation.

Sec. 9. *Customary price differentials.* Your ceiling prices, when determined,

shall reflect your customary price differentials, including discounts, allowances, premiums and extras, based upon differences in classes or location of purchasers, or in terms and conditions of sale or delivery.

Sec. 10. Exporters and importers.

(a) *Exporters:* Sales by persons exporting commodities from the United States (or its territories and possessions) are subject to the provisions of this regulation. If the ceiling price is determined by the seller for domestic purchasers, it may be adjusted pursuant to section 9 to take account of the seller's customary differentials for export sales.

(b) *Importers:* Sales made within the territorial jurisdiction of the United States, its territories and possessions, of commodities imported by the sellers from other countries are subject to the provisions of this regulation.

(c) Special provision for importers with existing purchase commitments.

(1) If you resell a commodity which you import in substantially the same form (except for services normally performed by importers such as sorting or packaging), or sell that commodity after simple processing operations by you, such as wool scouring or coffee roasting, you may adjust a ceiling price determined under section 3 for any such commodity which is delivered to you pursuant to a contract dated on or before January 26, 1951 to offset an increase in landed cost since the base period. The amount of the permitted increase is the dollar and cents amount by which your current landed cost per unit exceeds your highest base period landed cost for the commodity.

Sec. 12. *Group of retail sellers under common control.* A group of retail sellers under common ownership or control which had an established practice of centrally determining uniform prices during the base period for some or all of their categories of commodities or services, may treat the entire group of retail sellers as one seller for the purpose of (1) computing ceiling prices for the commodities or services for which this practice existed and (2) complying with the record-keeping, reporting and filing provisions of this regulation.

The ceiling prices shall be the uniform centrally determined prices. Records shall be centrally kept, listing the names and addresses of all retail sellers of this group. If a group of retail sellers determines ceiling prices under this section, each retail outlet which is a member of the group must continue to abide by the ceiling prices under this section. The permission granted by this section may be withdrawn by the Director of Price Stabilization from any group of retail sellers upon consideration of the price records maintained by such group and such reports as he may require.

Sec. 14. Exemptions and exceptions.

This regulation does not apply to the following:

(a) Prices or rentals for real property;

(b) Rates or fees charged for professional services;

(c) Rates charged by any person in the business of selling or underwriting insurance;

(f) Rates charged by any common carrier or other public utility;

(g) Margin requirements on any commodity exchange;

(n) Sales or deliveries of commodities made or produced by the seller at his home, solely for his own account, without the assistance of hired employees, if the total of such sales or deliveries does not exceed \$200 in any one calendar month.

(s) The following agricultural commodities:

(8) Fresh fish and Seafood and game.

(11) The following oilseeds or nuts, their oils and fatty acids or combinations of these oils so long as in normal trade practice they retain their identity:

Shark oil	Sperm oil
Whale oil	Cod oil

Sec. 15. *Amendments, protests and interpretations.* The Director of Price Stabilization may issue supplementary regulations modifying or implementing this regulation as he deems appropriate. Price Procedural Regulation No. 1¹ sets forth the circumstances and the manner in which you may obtain an official interpretation of this regulation; file a protest; or petition for an amendment. If the Director of Price Stabilization determines that adjustments are necessary to prevent or correct hardships or inequities and can be put into effect consistently with the objectives of the Defense Production Act of 1950, he will issue appropriate amendments or supplementary regulations providing for such adjustments.

Sec. 16. *Records.* This section tells you what records you must preserve and what additional records you must prepare.

(a) Base period records.

(1) You must preserve and keep available for examination by the Director of Price Stabilization those records in your possession showing the prices charged by you for the commodities or services which you delivered or offered to deliver during the base period, and also sufficient records to establish the latest net cost incurred by you prior to the end of the base period in purchasing the commodities (if you are a wholesaler or retailer).

(2) In addition, on or before March 1, 1951, you must prepare and preserve a statement showing the categories of commodities in which you made deliveries and offers for delivery during the base period; or if you sold services you must prepare and preserve a statement listing the services which you delivered or offered to deliver during the base period.

(3) On or before March 1, 1951, you must also prepare and preserve a ceiling price list, showing the commodities in each category (listing each model, type, style, and kind), or the services, delivered or offered for delivery by you during the base period together with a description or identification of each such commodity or service and a statement of the ceiling price. Your ceiling price list may refer to an attached price list or catalogue. If you are a retailer you

may satisfy the requirement of this paragraph (3) by recording on your purchase invoices, covering the commodities (indicating model, type, style, and kind) delivered or offered for delivery by you during the base period, the price at which you sold, or offered the commodities for delivery, during the base period.

(4) You must also prepare and preserve a statement of your customary price differentials for terms and conditions of sale and classes of purchasers, which you had in effect during the base period.

(5) If you operate a restaurant, you are required to preserve all menus used by you during the last ten days of the base period and all menus hereafter used by you.

(b) *Current records.* If you sell commodities or services covered by this regulation you must prepare and keep available for examination by the Director of Price Stabilization for a period of two years, records of the kind which you customarily keep showing the prices which you charge for the commodities or services. In addition, you must prepare and preserve records indicating clearly the basis upon which you have determined the ceiling price for any commodities or services not delivered by you or offered for delivery during the base period. If you are a retailer you are required to preserve your purchase invoices and to record thereon both your initial selling price and the section of this regulation under which you have determined your ceiling price. (c) In certain situations, other sections of this regulation require additional records to be prepared or submitted.

Sec. 17. *Sales slips and receipts.* Any seller who has customarily given a purchaser a sales slip, receipt, or similar evidence of purchase shall continue to do so. Upon request from a purchaser any seller, regardless of previous custom, shall give the purchaser a receipt showing the date, the name and address of the seller, the name of each commodity or service sold, and the price received for it.

Sec. 18. *Evasion.* Any practice which results in obtaining indirectly a higher price than is permitted by this regulation is a violation of this regulation. Such practices include, but are not limited to, devices making use of commissions, services, cross sales, transportation arrangements, premiums, discounts, special privileges, tie in agreements and trade understandings.

Sec. 19. *Transfers of business or stock in trade.* If the business, assets or stock in trade of any business are sold or otherwise transferred after January 26, 1951, and the transferee carries on the business, or continues to deal in the same type of commodities or services, in an establishment separate from any other establishment previously owned or operated by him, the maximum prices of the transferee shall be the same as those to which his transferor would have been subject if no such transfer had taken place, and his obligation to keep records sufficient to verify such prices shall be the same. The transferor shall either preserve and make available, or transfer, to the transferee all records of transactions prior to the transfer which

¹/SEE COMMERCIAL FISHERIES REVIEW, JANUARY 1951, PP. 86-92.

are necessary to enable the transferee to comply with the record provisions of this regulation.

Sec. 20. *Separate statement of taxes.* In addition to your ceiling price, you may collect the amount of any excise, sales or similar taxes paid by you as such only if, during the base period, you stated and collected such taxes separately from your selling price. In the case of such a tax imposed by law which is not effective until after January 26, 1951, you may collect the amount of the

tax actually paid as such by you, in addition to your ceiling price, if not prohibited by the tax law. You must in all such cases state separately the amount of the tax.

Sec. 21. *Penalties.* Persons violating any provision of this regulation are subject to the criminal penalties, civil enforcement actions, and suits for treble damages provided for by the Defense Production Act of 1950,

Note: The record keeping and reporting requirements of this regulation have been

approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

MICHAEL V. DYSALLE,
Director of Price Stabilization.

JANUARY 26, 1951.

Approved:

ERIC JOHNSTON,
Administrator, Economic
Stabilization Agency.

JANUARY 26, 1951

* * * * *

GENERAL WAGE STABILIZATION: General Wage Stabilization Regulation 1 was issued by the Economic Stabilization Agency on January 26, 1951, at the same time as the General Ceiling Price Regulation was issued. It stabilizes wages as of January 25, 1951. The Wage Stabilization Board formulated and will be directly responsible for the administration of this Regulation.

The full text of this Regulation follows:

TITLE 32A—NATIONAL DEFENSE, APPENDIX

Chapter II—Economic Stabilization Agency

GENERAL WAGE STABILIZATION REGULATION 1

Pursuant to the Defense Production Act of 1950 (Public Law 774, 81st Cong.) and Executive Order 10161 (15 F. R. 6105), it is hereby ordered, That rates of wages, salaries and other compensation are stabilized as hereinafter provided.

Statement of considerations. A regulation establishing ceilings on prices of materials and services generally was issued by the Economic Stabilization Agency on the 26 day of January, 1951. The provisions of Section 402 (b) of the Defense Production Act of 1950 require that upon the issuance of such an order wages, salaries and other compensation generally shall be stabilized.

For the purpose of preparing itself for the discharge of its responsibilities the Wage Stabilization Board heretofore distributed to representative labor and industry groups a series of questions, the answers to which would provide the Board with essential information for the development of wage stabilization policies.

Following the distribution of the series of questions, the Wage Stabilization Board conducted conferences which were attended by representative groups of labor and industry which presented their views respecting the development of wage stabilization policies.

The Administrator has this day issued General Ceiling Price Regulation 1 and is required by the Defense Production Act of 1950 to stabilize at the same time wages, salaries and other compensation. This regulation will be modified and implemented, from time to time, as the Wage Stabilization Board develops its wage stabilization policy. The Board will issue regulations governing the procedure for applying for modifications and adjustments.

GENERAL WAGE STABILIZATION REGULATION 1 Sec.

1. General stabilization of wages, salaries and other compensation.
2. Other existing regulations and orders superseded.
3. No rates below May 24-June 24, 1950, period.
4. Definitions.
5. Petitions for approval of increases.
6. Modifications and amendments.

AUTHORITY: §§ 1 to 6 issued under sec. 704, Pub. Law 774, 81st Cong. Interpret or apply Title IV, Pub. Law 774, 81st Cong., E. O. 10161, Sept. 9, 1950, 15 F. R. 6105.

Section 1. *General stabilization of wages, salaries and other compensation.* No employer shall pay any employee and no employee shall receive "wages, salaries and other compensation" at a rate in excess of the rate at which such employee was compensated on January 25, 1951, without the prior approval or authorization of the Wage Stabilization Board. No employee shall not be compensated at rates higher than those in effect on January 25, 1951, for the jobs for which they are hired.

Sec. 2. *Other existing regulations and orders superseded.* The provisions of

this regulation shall supersede the provisions of existing wage regulations and orders of the Economic Stabilization Agency. Wage Procedural Regulation No. 1 is hereby revoked.

Sec. 3. *No rates below May 24-June 24, 1950, period.* Nothing in this regulation shall be construed to require the stabilization of wages, salaries and other compensation for any job at a rate less than that paid during the period from May 24, 1950, to June 24, 1950, inclusive.

Sec. 4. *Definitions.* The term "wages, salaries and other compensation" shall have the meaning defined in Section 702 (e) of the Defense Production Act of 1950.

Sec. 5. *Petitions for approval of increases.* Petitions for the approval of any increase in "wages, salaries and other compensation" affected by this regulation shall be filed with the Wage Stabilization Board.

Sec. 6. *Modifications and amendments.* This regulation may be modified, amended or superseded by orders or regulations hereafter issued by the Wage Stabilization Board.

All other orders and directives of the Economic Stabilization Administrator, including General Order No. 3 of January 24, 1951, are hereby superseded to the extent that they are inconsistent herewith.

ERIC JOHNSTON,
Economic Stabilization
Administrator.

Issued: January 26, 1951.

* * * * *

OPENING OF REGIONAL AND DISTRICT PRICE CONTROL OFFICES: Opening of 14 regional and 42 district price control offices throughout the country on January 29 was announced by the Economic Stabilization Agency. Regional offices will be opened with a skeleton staff, with most of its members borrowed from other government agencies or loaned from ESA in Washington.

In addition, it is expected that 20 more district offices will be opened on or about February 15, and 9 others about March 1. The regional offices operating directly under national headquarters in Washington will direct the activities of the district offices, which in turn will carry the price stabilization program into local communities.

Each regional price director will be assisted by a staff which will include price specialists, attorneys, enforcement personnel, an information officer, an administrative officer, and a clerical staff. The district offices will be similarly staffed.

The 13 continental regional offices and the States they will serve and the 42 district offices are as follows:

TITLE 32A—NATIONAL DEFENSE, APPENDIX

Chapter II—Economic Stabilization Agency

REGIONAL AND DISTRICT OFFICES

AMENDMENT OF ORGANIZATIONAL STATEMENT

The organization of the Economic Stabilization Agency, established pursuant to the Defense Production Act of 1950 (Pub. Law 774, 81st Cong.), and Executive Order 10161 (15 F. R. 6105), as published in the FEDERAL REGISTER dated December 16, 1950 (15 F. R. 9004), is amended by adding the following section thereto:

SEC. VII. *Location.* The Regional and District Offices of the Economic Stabilization Agency are located as follows:

Region I (Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont). Office: Boston, Mass., 141 Milk Street. District offices: Portland, Maine, Post Office Building; Montpelier, Vt., 126 Main Street; Concord, N. H., 44 South Main Street; Hartford, Conn., 179 Alyn Street; Providence, R. I., 49 Westminster Street.

Region II (New York, New Jersey). Office: New York, N. Y., 2 Park Avenue. District offices: Buffalo, N. Y., 295 Main Street; Newark, N. J., 185 Washington Street.

Region III (Delaware, Pennsylvania). Office: Philadelphia, Pa., Fifteenth and Market Streets. District offices: Pittsburgh, Pa., Fulton Building; Wilmington, Del., 901 West Eighth Street.

Region IV (Maryland, North Carolina, Virginia, West Virginia, District of Columbia). Office: Richmond, Va., 900 North Lombardy Street. District offices: Charleston, W. Va., 601 Virginia Street East; Charlotte, N. C., 500 West Trade Street; Baltimore, Md., 103 South Gay Street; District of Columbia, 310 Sixth Street NW.

Region V (Alabama, Florida, Georgia, Mississippi, South Carolina, Tennessee). Office: Atlanta, Ga., 114 Marietta Street NW. District offices: Columbia, S. C., 1313 Main Street; Memphis, Tenn., Marx & Bensdorf Building; Jackson, Miss., 407 West Capitol Street; Birmingham, Ala., 1814 Second Avenue; Jacksonville, Fla., 221 West Adams Street.

Region VI (Kentucky, Michigan, Ohio). Office: Cleveland, Ohio, 1901 East Thirtieth Street. District offices: Cincinnati, Ohio, 37-41 West Seventh Street; Detroit, Mich., Book Tower; Louisville, Ky., 307 South Fifth Avenue.

Region VII (Illinois, Indiana, Wisconsin). Office: Chicago, Ill., 219 South Clark Street. District offices: Indianapolis, Ind., 730 East Washington Street; Milwaukee, Wis., 161 West Wisconsin Avenue.

Region VIII (Minnesota, North Dakota, Montana, South Dakota). Office: Minneapolis, Minn., 620 Marquette. District offices: Fargo, N. Dak., 16 Eighth Street South; Sioux Falls, S. Dak., 114 South Main Avenue; Helena, Mont., Federal Building.

Region IX (Iowa, Kansas, Missouri, Nebraska). Office: Kansas City, Mo., 112 Ninth Street. District offices: St. Louis, Mo., 314 North Broadway; Omaha, Neb., 1516 Harney Street; Des Moines, Iowa, 418 Seventh Street; Wichita, Kans., 3234 East Douglas Street.

Region X (Louisiana, Oklahoma, Arkansas, Texas). Office: Dallas, Tex., 3306 Main Street. District offices: Little Rock, Ark., 555 Building; Houston, Tex., 530 LaBanc Street; New Orleans, La., Standard Oil Building; Oklahoma City, Okla., 322 North Robinson Street.

Region XII (Colorado, New Mexico, Utah, Wyoming). Office: Denver, Colo., Central Savings Building, Fifteenth and Arapahoe Streets. District offices: Cheyenne, Wyo., 1509 Bent Avenue; Salt Lake City, Utah, 222 South West Temple Street; Albuquerque, N. Mex., 142 North Monroe Street.

Region XIII (Arizona, California, Nevada). Office: San Francisco, Calif., 1000 Geary Street. District offices: Reno, Nev., 1475 Wells Avenue; Los Angeles, Calif., 108 West 6th Street; Phoenix, Ariz., 315 North Central Avenue.

Region XIII (Idaho, Oregon, Washington). Office: Seattle, Wash., 1110 Second Avenue. District offices: Portland, Oreg., Lincoln Building; Boise, Idaho, American Legion Building.

ERIC JOHNSTON,
Economic Stabilization Administrator.

The fourteenth regional office will be for territories, and will be located in Washington. District offices will be located in the principal cities of the territories, and acting directors will be appointed to head them by the territorial governors.



Department of the Interior

DEFENSE FISHERIES ADMINISTRATION

SURVEY OF MATERIALS REQUIREMENTS OF FISHERY INDUSTRIES: Late in January the Defense Fisheries Administration (DFA) announced that it was participating in a Nation-wide survey requested by the National Production Authority (NPA). This survey is a prerequisite to the establishment of an orderly system of production and apportionment programming for scarce materials. Because of the expanded military program, it is possible that a "Controlled Materials Plan" may be implemented as

early as the third quarter of 1951. In order to prepare for this contingency, NPA must have the necessary information on materials requirements of all industries by March 1, 1951.

Obviously, the time available did not allow for a complete and comprehensive survey. For the phase of the survey affecting the fishery and allied industries, the Fish and Wildlife Service assigned some 30 of its staff to assist DFA in making the materials requirements survey of these industries. A high degree of cooperation from the fishery industries and the best efforts of those assigned to make the survey are required in order to successfully gauge the needs of these industries for scarce materials.

Whether or not the fishery industries are apportioned the necessary amounts of scarce materials depends on whether or not the members of these industries realize how important it is to them that their requirements be stated as completely and accurately as possible. The early days of World War II demonstrated the futility of granting priorities assistance for more materials than had been produced and how necessary and important it was to schedule in advance sufficient production to meet requirements.

No questionnaires were circulated and no formal reports were required for this survey, but Service personnel are calling on representatives of the industry and asking their assistance in arriving at typical unit requirements. It is from these that estimates will be made for total requirements of the various segments of the fishery industries.

* * * * *

SECOND DEPUTY DEFENSE FISHERIES ADMINISTRATOR NAMED: The appointment of Maurice Rattray of Seattle, Wash., as a deputy administrator of the Defense Fisheries Administration was announced by the Secretary of the Interior on January 25.

The new deputy will assist DFA Administrator Albert M. Day and Deputy Administrator Milton C. James in the broad supervision of the Department's program for assuring sufficient fishery commodities to satisfy the country's emergency needs.

Rattray has been president of a West Coast firm of exporters of canned foods since 1938. He has been associated with the fishing industry during his entire business career, which began in Canada when he joined the firm of which he is now president. From 1925 to 1938, Mr. Rattray headed the firm's office in Seattle, Wash., and San Francisco, Calif. During World War II he served as chief of the Fish and Food Products Division of War Foods Administration in Washington, D. C.

* * * * *

BRANCH OF ECONOMIC FACILITIES ESTABLISHED AND CHIEF NAMED: Under the Defense Fisheries Administration a Branch of Economics Facilities has been established, Secretary of the Interior Oscar L. Chapman announced on January 18.

The new branch, according to Defense Fisheries Administrator Albert M. Day, will plan and initiate programs relating to the economic aspects of the fishery industries, such as allocation of fish landings, concentration of production insofar as required, and interpretation of control regulations. It will also exercise advisory functions for the staff and for other Government agencies on ceiling prices, rationing, and manpower.

OTHER ACTIVITIES HAVING
MOBILIZATION ACTIVITIES

DIRECTION AND CONTROL OVER DEFENSE
PRODUCTION ACTIVITIES

At the same time, Dr. Richard A. Kahn has been named acting chief of the newly-established Branch. He has been Chief of the Economics and Cooperative Marketing Section, Branch of Commercial Fisheries, U. S. Fish and Wildlife Service, since January 6, 1944. His new duties will be somewhat similar to those he had during World War II when he was detailed from the Fish and Wildlife Service to the Office of the Coordinator of Fisheries in Washington, D. C., to assist in handling manpower problems, deferments, allocation and concentration orders, and matters related to the adjustment of ceiling prices then administered by the Office of Price Administration.



Department of State

INTERIOR REPRESENTATIVE TO ATTEND THIRD SET OF TARIFF NEGOTIATIONS:^{1/} Paul A. Unger, Office of the Secretary, Department of the Interior, will attend the Third Set of Tariff Negotiations by the Contracting Parties to the General Agreement on Tariffs and Trade now in session at Torquay, England, the Department of State announced on January 25. He will represent the Department of the Interior on the Interdepartmental Committee on Trade Agreements. The representative of the Department of the Interior on the committee,^{1/} William E. S. Flory will be unable to attend and Unger, who left January 25 for Torquay, will serve as his alternate.

Executive Order No. 10170, issued by the President on October 12, 1950, added the Department of the Interior to the eight government agencies which already had members on the Committee.

^{1/}ALSO SEE COMMERCIAL FISHERIES REVIEW, NOVEMBER 1950, P. 84.

* * * * *

POINT FOUR AGREEMENT WITH PERU INCLUDES FISHERY DEVELOPMENT PROJECTS: The United States and Peru on January 26 concluded a Point Four General Agreement, under which the two Governments will continue and expand their comprehensive program of technical cooperation, the Department of State announced on the same date. The agreement specifies the basic conditions of cooperation, as prescribed by the Act for International Development, authorizing the Point Four Program.

U. S.-Peruvian cooperation in the fields of agriculture (including fisheries), health and sanitation, and education has been carried on for the past eight years, chiefly through the work of three "servicios" jointly organized, staffed, and financed by the Peruvian Government and the Institute of Inter-American Affairs, a corporation of the U. S. Government.

With the establishment last September of the Technical Cooperation Administration in the Department of State, this work came under the Point Four Program. Six other technical assistance projects, begun under previous legislation, are also being continued under Point Four. Twelve requests for new projects are now under consideration by the Technical Cooperation Administration.

A total of \$1,091,250 has been tentatively earmarked from Point Four funds for the Peruvian program in the current fiscal year. This includes the \$750,000 earmarked for the work of three "servicios" operated by the Institute of Inter-American Affairs and the Peruvian Government.

The agriculture "servicio" has been mainly concerned with improving the food supply of the Peruvian people. The program now engages the services of 17 U. S.

specialists and 279 Peruvians. Included among the U. S. specialists is Robert O. Smith, fisheries consultant, who is working through the "servicio" on a project to develop Peru's fishing industry.

* * * * *

THIRD MEETING OF INDO-PACIFIC FISHERIES COUNCIL^{1/} SCHEDULED: The Third Meeting of the Indo-Pacific Fisheries Council is scheduled to open at Madras, India, on February 1, 1951. H. J. Deason, Chief, Office of Foreign Activities, U. S. Fish and Wildlife Service, Washington, D. C., has been designated the United States Delegate, according to a January 26 Department of State news release. Deason will be assisted by Townsend Cromwell, Oceanographer, Research and Development Section, Pacific Oceanic Fishery Investigations, U. S. Fish and Wildlife Service, Honolulu, Hawaii.

The principal functions of the Council are (1) to formulate the oceanographical, biological, and other technical aspects of the problems of development and proper utilization of the living aquatic resources of the Indo-Pacific area; (2) to encourage and coordinate research and the application of improved methods in everyday practices; and (3) to assemble, publish or otherwise disseminate oceanographical, biological, and other technical information relating to living aquatic resources.

Arrangements have been made for the Council to survey all aspects of the work which has been performed in carrying out these functions since its last meeting at Cronulla, Australia, April 17-28, 1950, and to review and discuss a number of special technical papers which have been prepared for the guidance of the Council in outlining its program for the coming year.

In connection with the forthcoming meeting, the Council will also hold a symposium on "The Transplantation of Fish within the Indo-Pacific Region and the Introduction of Fish to the Region from Outside."

The Agreement for the Establishment of the Indo-Pacific Fisheries Council, which was formulated at a fisheries meeting held at Baguio, Philippines, February 25-28, 1948, under the auspices of the Food and Agriculture Organization of the United Nations, entered into force on November 9, 1948. The following 15 countries are parties to the agreement at the present time: Australia, Burma, Ceylon, China, France, India, Korea, Indonesia, Netherlands, Pakistan, Philippines, Thailand, United Kingdom, United States, and Vietnam.

^{1/}SEE COMMERCIAL FISHERIES REVIEW, JULY 1950, PP. 23-4; MAY 1950, PP. 91-2.

* * * * *

U. S. COMMISSIONERS APPOINTED TO NORTHWEST ATLANTIC FISHERIES COMMISSION: The appointment of three Commissioners to represent the United States on the Northwest Atlantic Fisheries Commission was announced by the President, on January 15, 1951. They are: Hilary J. Deason, Chief of the Office of Foreign Activities, Fish and Wildlife Service, U. S. Department of the Interior; Bernhard Knollenberg, author and lawyer of Chester, Connecticut; and Francis W. Sargent, Director of the Division of Marine Fisheries, Commonwealth of Massachusetts, Boston, Massachusetts.

The Commission is being established by virtue of a Convention between the United States and nine other nations which participate in the fisheries of the Northwest Atlantic Ocean. Its purpose will be to provide the machinery for international cooperation in the scientific investigation and development of the fishery resources of the waters off the west coast of Greenland, and the east coasts of



HILARY J. DEASON

it is expected that such a meeting will be held in Washington within the next few months.



Department of the Treasury BUREAU OF CUSTOMS

BANS IMPORTS OF RUSSIAN CANNED CRAB MEAT: Imports of Russian crab meat were banned by the Bureau of Customs effective January 27, 1951, on the grounds that it is processed by "forced, convict and indentured labor." The full text of the order as it appeared in the Federal Register of January 27 follows:

Bureau of Customs

[T. D. 52855]

CONVICT, FORCED OR INDENTURED LABOR GOODS

CANNED CRAB MEAT FROM THE UNION OF SOVIET SOCIALIST REPUBLICS

Upon the basis of the evidence obtained from various sources, I have ascertained and hereby find, pursuant to the provisions of § 12.42, Customs Regulations of 1943, promulgated in accordance with the authority contained in section 307, Tariff Act of 1930 (19 U. S. C. 1307), that convict labor, forced labor, and indentured labor under penal sanctions are used in whole or in part in the manu-

facture and production of canned crab meat in the Union of Soviet Socialist Republics and on vessels which are of "U. S. S. R." registry or under the exclusive dominion and control of the "U. S. S. R.", and that canned crab meat is manufactured or produced in the United States in sufficient quantities to meet the consumptive demands of the United States.

Accordingly, on and after the date of the publication of this finding in the FEDERAL REGISTER, collectors of customs shall prohibit, under the provisions of section 307, Tariff Act of 1930, the importation of canned crab meat manufactured or produced wholly or in part in the Union of Soviet Socialist Repub-

lics or manufactured or produced wholly or in part on vessels of "U. S. S. R." registry or on vessels under the exclusive dominion and control of the "U. S. S. R.", unless the importer establishes by satisfactory evidence, as provided for in §§ 12.42-12.46, inclusive, Customs Regulations of 1943, that the merchandise was not manufactured or produced wholly or in part by any one of the classes of labor mentioned above.

(Sec. 307, 46 Stat. 689; 19 U. S. C. 1307)

[SEAL] FRANK DOW,
Commissioner of Customs.

Approved: January 25, 1951.

JOHN S. GRAHAM,
Acting Secretary of the Treasury.

1951 TARIFF-RATE QUOTA FOR GROUND FISH (INCLUDING ROSEFISH) FILLETS:^{1/} The following establishing a 1951 tariff-rate quota for fresh and frozen groundfish (including rosefish) fillets appeared in the Federal Register of January 20, 1951:

^{1/}ALSO SEE PP. 40-1 OF THIS ISSUE.

DEPARTMENT OF THE TREASURY

Bureau of Customs

[T. D. 52647]

FISH

TARIFF-RATE QUOTA

JANUARY 16, 1951.

The tariff-rate quota for the calendar year 1951 on certain fish dutiable under paragraph 717 (b), Tariff Act of 1930, as

modified pursuant to the General Agreement on Tariffs and Trade (T. D. 51802).

In accordance with the proviso to item 717 (b) of Part I, Schedule XX, of the General Agreement on Tariffs and Trade (T. D. 51802), it has been ascertained that the average aggregate apparent annual consumption in the United States of fish, fresh or frozen (whether or not packed in ice), filleted, skinned, boned, sliced, or divided into portions, not specially provided for: Cod, haddock, hake,

pollock, cusk, and rosefish, in the 3 years preceding 1951, calculated in the manner provided for in the cited agreement, was 194,932,053 pounds. The quantity of such fish that may be imported for consumption during the calendar year 1951 at the reduced rate of duty established pursuant to that agreement is, therefore, 29,239,808 pounds.

[SEAL]

FRANK DOW,
Commissioner of Customs.



Eighty-Second Congress (First Session)

JANUARY 1951

The First Session of the Eighty-Second Congress commenced on January 3, 1951. Listed below are public bills and resolutions introduced and referred to committees, or passed by the Eighty-Second Congress (First Session) and signed by the President, that affect in any way the fisheries and allied industries. Public bills and resolutions are shown in this section only when introduced and, if passed, when they are signed by the President; and the more pertinent reports or hearings on some of the bills shown in this section from month to month are also listed.

BILLS AND RESOLUTIONS INTRODUCED:

Alaska Fisheries—Transfer of Jurisdiction to Territory: H. R. 159 (Bartlett) — A bill transferring the jurisdiction, supervision, administration, and control over the salmon and other fisheries of Alaska, except the fur-seal and sea-otter fisheries, from the Department of the Interior to the Territory of Alaska, and for other purposes; to the Committee on Merchant Marine and Fisheries.

Alaska Statehood: S. 50 (O'Mahoney, for himself and 18 other Senators) — A bill to provide for the admission of Alaska into the Union; to the Committee on Interior and Insular Affairs.

Also: H. R. 1492 (Bartlett)...to the Committee on Public Lands.

H. R. 1510 (Yorty)...

H. R. 1863 (Angell)...

Alaskan Labor Conditions Report: H. J. Res. 2 (Bartlett) — Joint resolution authorizing the Bureau of Labor Statistics of the United States Department of Labor to report periodically on labor conditions in the Territory of Alaska; to the Committee on Education and Labor.

Chemicals in Food Products: H. Res. 18 (Delaney) — Resolution to continue the authority of the Select Committee to Investigate the Use of Chemicals in Food Products; to the Committee on Rules.

Also: H. Res. 74 (Delaney)...

H. Con. Res. 29 (Delaney) — Authorizing the Select Committee to Investigate the Use of Chemicals in Food Products to have printed for its use additional copies of certain hearings; to the Committee on House Administration.

Colorado River Dam: S. 75 (McFarland, for himself and Hayden) — A bill authorizing the construction, operation, and maintenance of a dam and incidental works in the stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes; to the Committee on Interior and Insular Affairs.

Defense Production Act Presidential Powers: H. Con. Res. 4 (Javits) — Concurrent resolution expressing

the sense of the Congress that the President exercise now powers granted him by section 402 of the Defense Production Act of 1950; to the Committee on Banking and Currency.

Also: H. Con. Res. 28 (McKinnon)...

Defense Production Act—Repeal Provisions which Prevent Control of Food Prices: H. R. 2126 (Ribicoff) — A bill to repeal those provisions of the Defense Production Act of 1950 which prevent effective control of food prices; to the Committee on Banking and Currency.

Dollar Purchasing Power Equalization for Imports: H. R. 283 (Ramsay) — A bill to equalize the purchasing power of the American dollar and currencies of the United States, when the same come into competition with foreign moneys in the purchase of goods and merchandise, of all kinds not on the free list, that are bought for transportation and importation into the United States of America from foreign countries; to the Committee on Ways and Means.

Economic Aid Ban for Foreign Countries Exporting to Russia or Satellites: H. R. 1621 (Lantaff) — A bill to provide that no economic or financial assistance shall be furnished to foreign countries which permit the exportation of strategic war materials to Russia and Russia's satellites, and for other purposes; to the Committee on Foreign Affairs.

Economic Aid to China: S. 438 (McCarren) — A bill to provide economic, financial and other aid to China; to the Committee on Foreign Relations.

Economic Aid to Israel: H. R. 27 (Dingell) — A bill to provide for the extension of economic aid to Israel; to the Committee on Foreign Affairs.

Economic Stabilization: H. R. 1617 (Hoffman of Michigan) — A bill to stabilize prices, prevent inflation, and control production; to the Committee on Banking and Currency.

Export Policies and Control Regulations Study: H. Res. 23 (Heseltun) — Resolution directing full, complete, and continuing study and investigation of the administration, execution, and enforcement of export policies and control regulations; to the Committee on Rules.

Facilities to Protect Federal Resources Affected by Dam Projects: H. R. 1626 (Hansfield) - A bill to provide for the installation of improvements and facilities needed for the protection, development, and utilization of Federal resources affected by dam and water reservoir projects constructed by the Federal Government, and for other purposes; to the Committee on Public Lands.

Fats and Oils Import Equalizing Fee, Etc.: H. R. 528 (McCormack) - A bill to provide aid in stabilizing agriculture prices by providing an equalizing fee on imported fats and oils, an offset on exports of fats and oils, and for other purposes; to the Committee on Ways and Means.

Fats and Oils Parity Price: H. R. 1312 (Scudder) - A bill to amend the Agricultural Act of 1948 by adding thereto a new section to establish an average parity price for fats and oils and to aid in maintaining such parity price to producers; to the Committee on Agriculture.

Fertilizer Materials Regulations: H. R. 1755 (Burdick) - A bill to regulate the registration, manufacture, labeling, and inspection of fertilizer and fertilizer materials shipped in interstate commerce, and for other purposes; to the Committee on Agriculture.

Fish Hatchery: H. R. 424 (Wickersham) - A bill to establish rearing ponds and a fish hatchery in southwestern Oklahoma; to the Committee on Merchant Marine and Fisheries.

Fishing Industry Relief: S. Res. 30 (Brewster) - Whereas the fishing industry is an important part of the economy of the United States; and

Whereas the growing population of the Nation emphasizes the increasing future importance of fish as a food; and

Whereas the men and equipment of the fishing fleets and the shore workers engaged in the preparation of the catches, and the food resource thereby made available, have been demonstrated in two world wars to be necessary to the national defense; and

Whereas operations of much of the fishing industry have been seriously curtailed by reason of steadily growing imports of fish and fishery products, particularly of fresh and frozen groundfish fillets, and there is reason to believe that similar conditions are imminent in the tuna industry on the Pacific coast; and

Whereas if the present trend is permitted to continue, the fishing industry will, within a short time, be so impaired as to force out of business a major portion of the fishing fleet of the United States and force out of employment a major portion of the workmen employed in various phases of the industry; and

Whereas the domestic fishing industry has already been adversely affected and is further seriously threatened by the consistently increasing importations of fish and fishery products into the United States; and

Whereas the imported fish are caught by workmen whose wage scale and standard of living are far below those of Americans in like occupations; and

Whereas, notwithstanding the resulting lower cost of fish in their primary foreign market, the finally processed product is sold to the American housewife at the same price as the domestic fish; and

Whereas representatives of the fishing industry and others from many parts of the United States recently appeared before the Committee on Merchant Marine and Fisheries of the House of Representatives and attested to the facts hereinbefore stated; and

Whereas the foregoing indicates the need for an immediate study and investigation of the cause and effect of a situation that will, if not corrected, result in the serious impairment of the oldest and one of the most important food-producing industries in the United States: Therefore be it

Resolved, That the Secretary of the Interior be, and he hereby is, requested to cause an immediate study to be made of—

(1) the differences in the costs of domestic production of fresh and frozen fish, especially groundfish fillets, and the costs of foreign production of similar fish; and

(2) the effect on the domestic fishing industry of increasing imports of fresh and frozen fish, especially groundfish fillets, into the United States;

and with the advice of, and in coordination with, the Department of State, the Department of Agriculture, the United States Tariff Commission, the Bureau of Customs of the Department of the Treasury, and other appropriate executive departments and independent agencies of the Government to recommend means by which the United States fishing industry may survive and be saved harmless against the inroads of foreign-caught and foreign-processed fish; and that, because of the urgency of the situation, he be and hereby is requested to make his report and recommendation to the Senate within 30 days after the adoption of this resolution.

Fishing Vessels Marine Inspection by U. S. Coast Guard: H. R. 1762 (Nicholson) - A bill for the safety of life and property by making all commercial fishing vessels subject to the rules and regulations of the United States Coast Guard marine inspection; to the Committee on Merchant Marine and Fisheries.

Forced Labor Products Imports Prohibited: H. R. 327 (Reed) - A bill to amend the Tariff Act of 1930 to facilitate the enforcement of certain provisions thereof prohibiting importation of products of forced labor, and for other purposes; to the Committee on Ways and Means.

Foreign-Trade Agreements with Communist-Controlled Countries: H. Con. Res. 2 (Burnside) - Concurrent resolution expressing the sense of Congress that the President should rescind foreign-trade agreements with Communist-controlled countries; to the Committee on Ways and Means.

Also: H. Con. Res. 3 (Hand)...
 H. Con. Res. 10 (Jenkins)...
 H. Con. Res. 11 (Ramsay)...
 H. Con. Res. 11 (Sadlak)...
 H. Con. Res. 12 (Secret)...
 H. Con. Res. 22 (Phillips)...

Hawaii Statehood: S. 49 (O'Nahoney, for himself and 20 other Senators) - A bill to enable the people of Hawaii to form a constitution and State government and to be admitted into the Union on an equal footing with the original States; to the Committee on Interior and Insular Affairs.

Also: H. R. 49 (Curtis of Nebraska)... to the Committee on Public Lands.

H. R. 1646 (Yorty)...
 H. R. 1862 (Angell)...

Import of Convict-Made Goods: H. Res. 34 (Ramsay) - Resolution creating a select committee to conduct an investigation and study of the importation of convict-made goods; to the Committee on Rules.

Also: H. Res. 35 (Ramsay) - Resolution to provide funds for the expenses of the investigation and study authorized by House Resolution 34; to the Committee on House Administration.

Marketing and Minimum Prices for Agricultural Products: H. R. 2047 (Gross) - A bill to regulate interstate and foreign commerce in agricultural products; to prevent unfair competition; to provide for the orderly marketing of such products; to promote the general welfare by assuring an abundant and permanent supply of such products by securing to the producers a minimum price of not less than cost of production, and for other purposes; to the Committee on Agriculture.

Marketing Facilities for Perishable Commodities: H. R. 26 (Brooks) - A bill to encourage the improvement and development of marketing facilities for handling perishable agricultural commodities; to the Committee on Agriculture.

Also: H. R. 32 (Cooley)...
 H. R. 1291 (Phillips)...

Merrimack River Survey: H. R. 206 (Lane) - A bill to provide for a comprehensive survey to promote the development of hydroelectric power, flood control, and other improvements on the Merrimack River; to the Committee on Public Works.

Merrimack Valley Authority: H. R. 205 (Lane) - A bill to establish a Merrimack Valley Authority to provide for unified water control and resource development on the Merrimack River and surrounding region in the interest of the control and prevention of floods, the promotion of navigation and reclamation of the public lands, the promotion of family type farming, the development of the recreational possibilities and the promotion of the general welfare of the area, the strengthening of the national defense, and for other purposes; to the Committee on Public Works.

Motor Vehicle Laws: H. J. Res. 54 (Taylor) - Joint resolution establishing a Federal Motor Vehicle Commission for the purpose of making uniform laws pertaining to operation, ownership, and control of motor vehicles; to the Committee on Interstate and Foreign Commerce.

Nautical Education: S. 474 (Brewster) - A bill to provide for nautical education in the Territories, to facilitate nautical education in the States and Terri-

ories, and for other purposes; to the Committee on Interstate and Foreign Commerce.

New England Rivers Survey: H. R. 242 (Rogers of Massachusetts) - A bill to provide for an examination and survey of the rivers of the New England States to further the program for the general generation of electric energy in such States; to the Committee on Public Works.

Nutrition Through Improved Food Supplies Distribution: S. 287 (Aiken) - A bill to safeguard the health efficiency, and morale of the American people; to provide for improved nutrition through a more effective distribution of food supplies through a food-allocation program; to assist in maintaining fair prices and incomes to farmers by providing adequate outlets for agricultural products; to prevent burdening and obstructing channels of interstate commerce; to promote the full use of agricultural resources; and for other purposes; to the Committee on Agriculture and Forestry.

Passamaquoddy Power Project: S. 72 (Smith of Maine) - A bill to establish the Passamaquoddy power project for the development and use of tidal energy in the waters of Passamaquoddy Bay for the production of electrical power; to the Committee on Public Works.

Passamaquoddy Power Project Plans Survey: S. J. Res. 18 (Smith of Maine) - Joint resolution authorizing the International Joint Commission to make a survey to determine the most economical and most feasible plan for the construction of the proposed Passamaquoddy tidal power project at Passamaquoddy Bay in the State of Maine and the Province of New Brunswick and authorizing the appropriation of not to exceed \$3,900,000 to defray the cost thereof, and for other purposes; to the Committee on Foreign Relations.

Also: H. J. Res. 118 (Fellow)... to the Committee on Foreign Affairs.

H. J. Res. 120 (Hale)...

Price and Wage Controls and Effective Dates: H. J. Res. 33 (Larocade) - Joint resolution to amend section 402 of the Defense Production Act so as to require that if price or wage controls are exercised under that section they be exercised for prices and wages generally and ceilings be set at the levels prevailing from May 24, 1950, to June 24, 1950; to the Committee on Banking and Currency.

Price Control Act of 1942 Amendment: H. R. 221 (Larocade) - A bill to amend the Emergency Price Control Act of 1942, as amended, relating to actions for civil liabilities for violation of the Emergency Price Control Act; to the Committee on Banking and Currency.

Recreational Facilities in Reservoir Areas: S. 40 (McCarran) - A bill to authorize the Secretary of the Interior to establish recreational facilities in reservoir areas of reclamation projects; to the Committee on Interior and Insular Affairs.

Reduction-of-Tariff-Rates Executive Agreements: H. R. 86 (Hand) - A bill to require approval by Congress of executive agreements with respect to the reduction of tariff rates before the same become effective; to the Committee on Ways and Means.

Retail Meat Price Control: H. Res. 50 (Edwin Arthur Hall) - Resolution calling for retail price control of meat; to the Committee on Banking and Currency.

Rockfish Sales in D. C.: S. 41 (McGarran) - A bill prohibiting the sale in the District of Columbia of rockfish weighing more than 15 pounds; to the Committee on the District of Columbia.

Roll-Back of Retail Prices to July 1939: H. Res. 101 (Edwin Arthur Hall) - Resolution calling for a general roll-back of retail prices to the July 1939 level; to the Committee on Banking and Currency.

School Lunch Act Amendment: H. R. 1732 (Farrington) - A bill to amend the National School Lunch Act with respect to the apportionment of funds to Hawaii and Alaska; to the Committee on Education and Labor.

Tidelands Jurisdiction: H. R. 58 (Doyle) - A bill to confirm and establish the titles of the States to lands beneath navigable waters within State boundaries and to the natural resources within such lands and waters, to provide for the use and control of said lands and resources, and to provide for the use, control, exploration, development, and conservation of certain resources of the Continental Shelf lying outside of State boundaries; to the Committee on Judiciary.

Also: H. R. 1089 (Walter)...
H. R. 1230 (Willis)...

Tidelands Jurisdiction: H. R. 266 (Poulson) - A bill to confirm and establish the titles of the States to lands beneath navigable waters within State boundaries and natural resources within such lands and waters and to provide for the use and control of said lands and resources; to the Committee on the Judiciary.

Also: H. R. 415 (Werdel)...
H. R. 1022 (Hale)...
H. R. 1310 (Scudder)...
H. R. 1364 (McDonough)...
H. R. 1523 (Boggs of Louisiana)...
H. R. 1924 (Bramblett)...

Trade Agreements Extension: H. R. 1612 (Doughton) - A bill to extend the authority of the President to enter into trade agreements under section 350 of the Tariff Act of 1930, as amended, and for other purposes; to the Committee on Ways and Means.

Transportation on Canadian Vessels in Alaska and to United States: H. R. 157 (Bartlett) - A bill to provide transportation on Canadian vessels between Skagway, Alaska, and other points in Alaska, between Haines, Alaska, and other points in Alaska, and between Hyder, Alaska, and other points in Alaska or the continental United States, either directly or via a foreign port, or for any part of the Transportation; to the Committee on Merchant Marine and Fisheries.

Transportation Tax Exemption for Fishing Vessels: H. R. 84 (Hand) - A bill to provide that the tax on the transportation of persons shall not apply to transportation on boats for fishing purposes; to the Committee on Ways and Means.

Also: H. R. 387 (Sasser)...

Valley Authority Confirmation by State Vote: H. R. 1244 (McDonough) - A bill to prohibit the establishment of a valley authority in any State that would be substantially affected thereby until the people of the affected areas of such State have voted affirmatively for such valley authority; to the Committee on Public Works.

Water Pollution Control Act Amendment: H. R. 249 (Murphy) - A bill to amend the Water Pollution Control Act to increase the amount authorized to be appropriated for making loans to States, municipalities, and interstate agencies for the construction of treatment works and for the preparation of engineering reports, plans, and specifications in connection therewith; to the Committee on Public Works.

Watersheds Program Amendment: H. R. 927 (Lanham) - A bill to amend the programs on the watersheds authorized in section 13 of the Flood Control Act of December 22, 1944; to the Committee on Public Works.

Yakima River Flood Control: H. R. 200 (Judd) - A bill authorizing flood-control works on the Yakima River and tributaries; to the Committee on Public Works.

CONGRESSIONAL HEARINGS:

Printed proceedings of Congressional hearings of interest to the fishery and allied industries (available only from the committee holding the hearings):

1951 Extension of the Reciprocal Trade Agreements Act (Hearing before the Committee on Ways and Means, House of Representatives, Eighty-Second Congress, First Session, on H. R. 1612, A bill to extend the authority of the President to enter into trade agreements under section 350 of the Tariff Act of 1930, as amended, and for other purposes; January 22, 24, 25, and 26, 1951), 631 p., illus., printed. This report contains all the statements and data submitted to the Committee on the Reciprocal Trade Agreements. It includes the testimony and information presented by members of the fishery and allied industries who testified as to the affect of these Agreements on the Nation's fisheries.

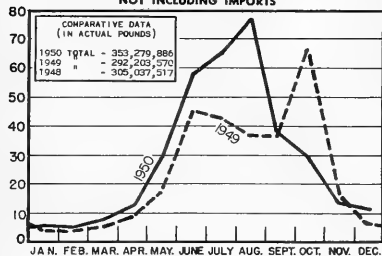
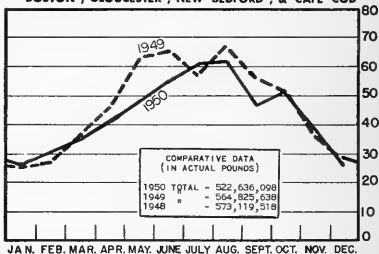
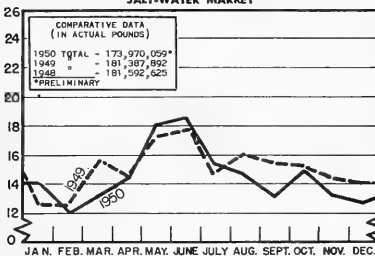
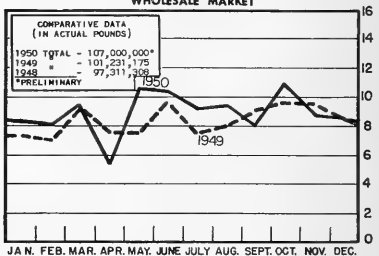
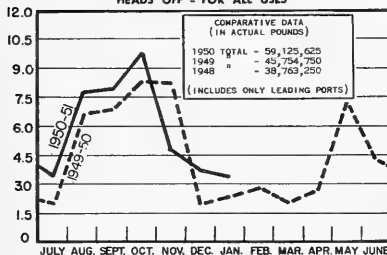
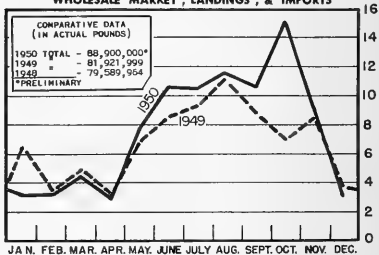
CONGRESSIONAL REPORTS:

Committee reports on bills reported in this section of interest to the fishery and allied industries (available only from the committee submitting the report):

Investigation of the Use of Chemicals in Food Products, House Report No. 3254 (January 3, 1951, 81st Congress, 2nd Sessions), 11 p., printed, pursuant to H. Res. 323 (81st Cong., 1st sess.), authorizing select committee to conduct an investigation on the use of chemicals, compounds, and synthetics in the production, processing, preparation, and packaging of food products to determine the effect of these upon the health and welfare of the Nation and upon the stability and well-being of the agricultural economy; use of pesticides and insecticides with respect to food and food products; and the use of chemicals, compounds, and synthetics in the manufacture of fertilizer. Discusses the scope and nature of the problem; hazards to the public health resulting from the use of pesticides; public-health problems arising from the use of chemicals in the processing, preservation, and production of foods; chemical fertilizers and the public health; and inadequacy of present legislation. In its conclusions the committee states that "The evidence so far presented indicates that existing Federal laws dealing with the use of chemicals in food are not adequate to protect the public against the addition of unsafe chemicals."

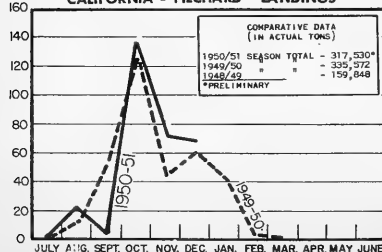
LANDINGS AND RECEIPTS

In Millions of Pounds

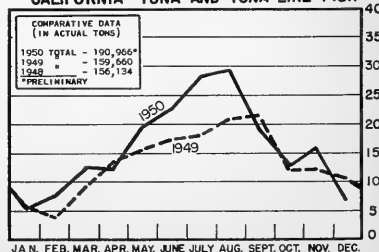
MAINE - LANDINGS
NOT INCLUDING IMPORTSMASSACHUSETTS - LANDINGS
BOSTON, GLOUCESTER, NEW BEDFORD, & CAPE CODNEW YORK CITY - RECEIPTS OF FRESH & FROZEN FISH
SALT-WATER MARKETCHICAGO - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKETGULF - SHRIMP LANDINGS
HEADS OFF - FOR ALL USESSEATTLE - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKET, LANDINGS, & IMPORTS

In Thousands of Tons

CALIFORNIA - PILCHARD LANDINGS



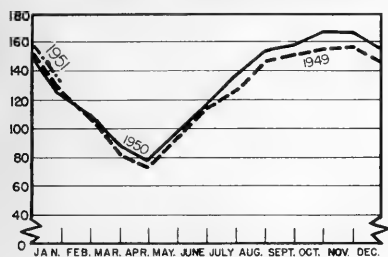
CALIFORNIA - TUNA AND TUNA-LIKE FISH



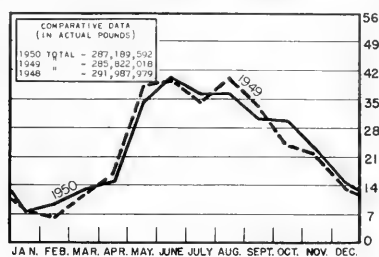
COLD STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS

In Millions of Pounds

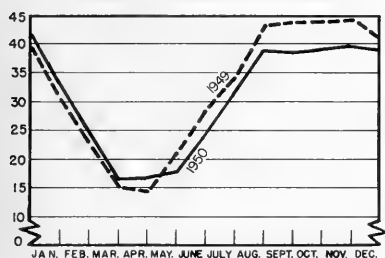
U.S. & ALASKA - HOLDINGS OF FROZEN FISH



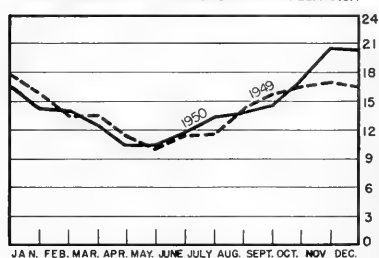
U.S. & ALASKA - FREEZINGS



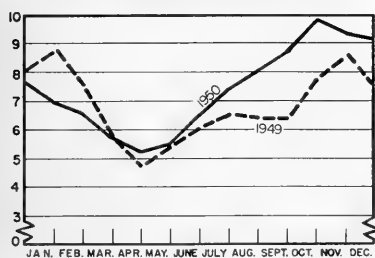
NEW ENGLAND - HOLDINGS OF FROZEN FISH



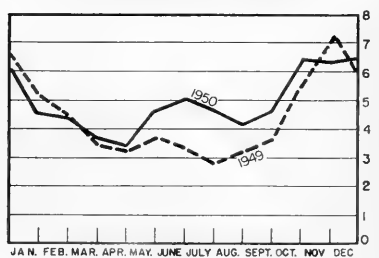
NEW YORK CITY - HOLDINGS OF FROZEN FISH



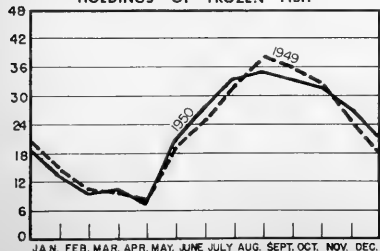
CHICAGO - HOLDINGS OF FROZEN FISH



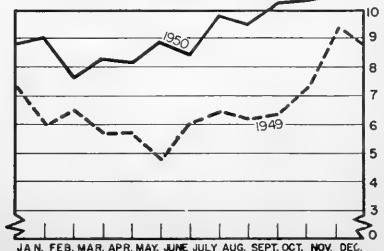
GULF - HOLDINGS OF FROZEN FISH



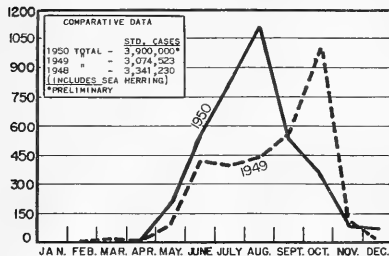
WASHINGTON, OREGON, AND ALASKA - HOLDINGS OF FROZEN FISH



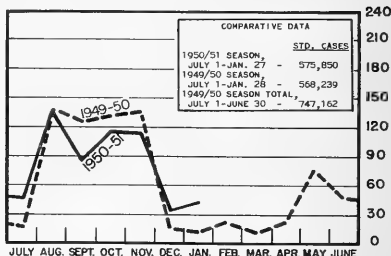
CALIFORNIA - HOLDINGS OF FROZEN FISH



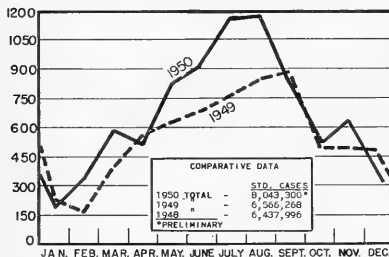
CANNED FISHERY PRODUCTS

MAINE - SARDINES, ESTIMATED PACK
In Thousands of Standard Cases

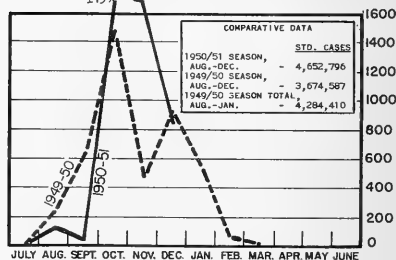
UNITED STATES - SHRIMP



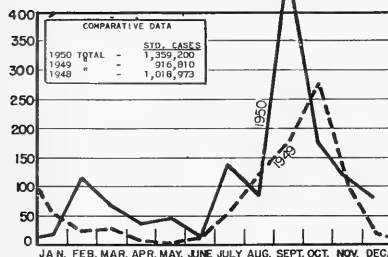
CALIFORNIA - TUNA AND TUNA-LIKE FISH



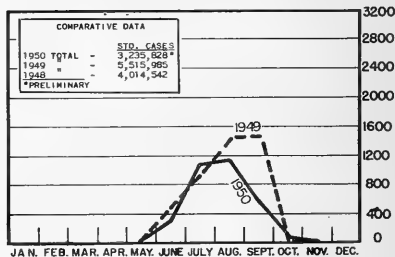
CALIFORNIA - PILCHARDS



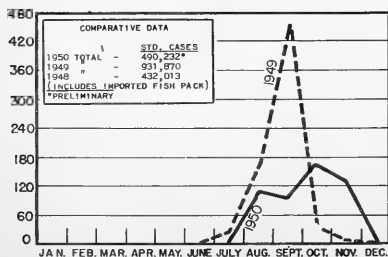
CALIFORNIA - MACKEREL



ALASKA - SALMON



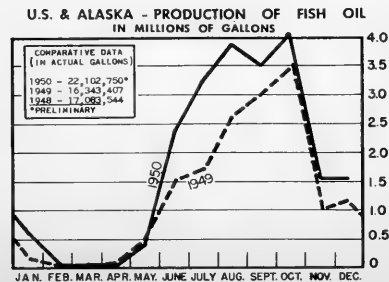
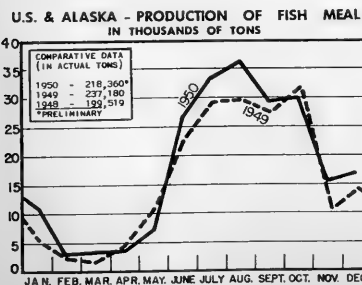
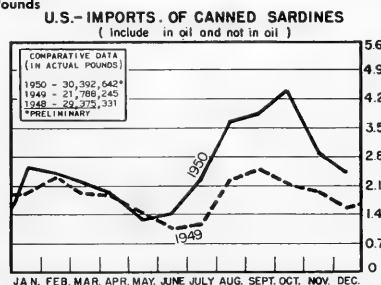
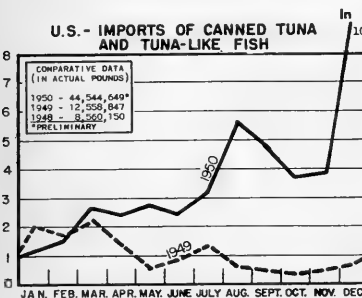
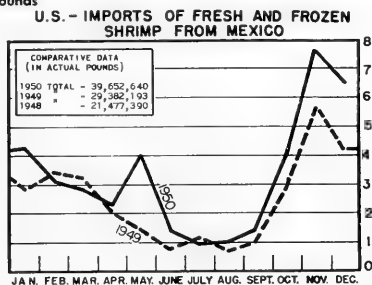
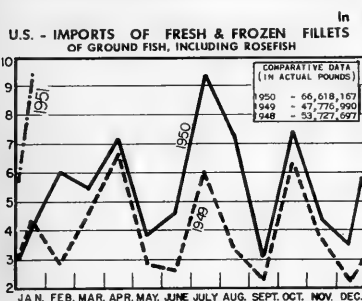
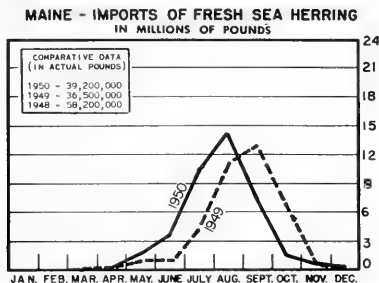
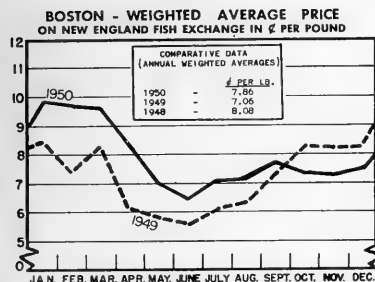
WASHINGTON - PUGET SOUND SALMON

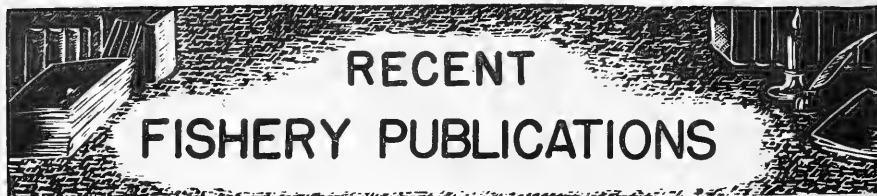


STANDARD CASES

Variety	No. Cans	Can Designation	Net. Wgt.
SARDINES	100	1/4 drawn	3 1/4 oz.
SHRIMP	48	—	5 oz.
TUNA	48	No. 1 1/2 tuna	7 oz.
PILCHARDS	48	No. 1 oval	15 oz.
MACKEREL	48	No. 300	15 oz.
SALMON	48	1-pound tall	16 oz.

PRICES, IMPORTS and BY-PRODUCTS





RECENT FISHERY PUBLICATIONS

Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
FL - FISHERY LEAFLETS.
SSR.- FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number	Title
CFS-578	- Manufactured Fishery Products, 1948 Annual Summary, 8 p.
CFS-596	- Massachusetts Landings, August 1950, 14 p.
CFS-600	- Fish Meal and Oil, November 1950, 2 p.
CFS-605	- Florida Landings, November 1950, 4 p.
CFS-608	- Texas Landings, December 1950, 4 p.
CFS-609	- Maine Landings, November 1950, 4 p.
CFS-612	- Alabama Landings, December 1950, 4 p.
FL-195	(Revised) - Partial List of Manufacturers of Fishing Gear and Accessories, 5 p.

Number	Title
FL-336g	- Quarterly Outlook for Marketing Fishery Products, January-March 1951, 27 p.

SSR-Fish. No. 40 - Survey of the Columbia River and Its Tributaries--Part VII, "Area VI - Snake River from Above the Grande Ronde River through the Payette River," by Zell E. Parichurst, 95 p., illus., November 1950.

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Curing of Fishery Products, by Norman D. Jarvis, Research Report 18, 274 p., illus., printed, 60 cents, 1950. Fish curing is an important method of preservation in the fishing industries, but information on the principles involved in the salting and smoking of fish commercially is widely scattered. This report is a reference handbook on the problems of fish curing. It includes information from recent technical studies of the principles on which fish curing is based, discusses improvements in methods and equipment, and describes the standard methods. After discussing the importance of fish curing in the history of the United States, the author continues with a statistical review of the fish curing industry and the preservative action in fish curing. Among the various methods of preservation included are air-drying, dehydration, and salting. Standard methods for producing certain specific types of products are explained--dry salting cod and miscellaneous fish; dry salting fish in warm climates; miscellaneous brine-pickled fish; salting herring and salmon; spiced and pickled fish; caviar and other fish-roe products; smoking herring, salmon, haddock and other groundfish, and other miscellaneous fish; and preparation of delicatessen products. Also, the book contains a discussion on the spoilage in dry salt cod and other cured fish. Included are an extensive bibliography and an index.

Fishery Statistics of the United States, 1947, by A. W. Anderson and E. A. Power, Statistical Digest 21, 285 p., illus., processed, 1950, \$1.00. A review of the fishery statistics for the year 1947 collected by the Service's Branch of Commercial Fisheries during 1948 is to be found in this publication. It includes data on the quantity and value of the catch of fishery products, employment in the fisheries, quantity of gear operated, the number of fishing craft employed in the capture of fishery products, and certain information on the quantity and value of the production of manufactured fishery products and byproducts, and foreign fishery trade. Statistical surveys for the 1947 data were conducted in all sections except the South Atlantic and Gulf States and the Mississippi River States. The South Atlantic States were last canvassed for 1945, and the most recent data available for the Mississippi River and its tributaries are for 1931. The publication contains a general review, detailed sectional summaries and statistics by states, supplementary surveys, Hawaiian and Alaskan fisheries data, and a review of certain major fisheries (cod, haddock, halibut, mackerel, menhaden, pilchard, rosefish, salmon, tuna, and whaling). An explanation of the statistical survey procedure, a glossary of names of fishery products, and illustrations of a large number of fish and shellfish and other fishery products are also included.

ARTICLE BY FISH AND WILDLIFE SERVICE AUTHOR IN OTHER PUBLICATIONS

"The Co-Determination of Indole and Skatole," by Charles S. Myers, article, Journal of Association of Official Agricultural Chemists, November 1950 (quarterly publication), vol. 33, no. 4, pp. 971-6, printed, annual subscription rate, \$7.50. Association of Official Agricultural Chemists, Box 540, Benjamin Franklin Station, Washington 4, D. C. The report presents experimental data for pure solutions,

whereby (a) indole may be determined in the presence of skatole, and (b) skatole may be estimated by calculations based on the difference between two spectrophotometric readings. The procedure is based on the well-known Ehrlich reaction of indole with p-dimethylamine-benzaldehyde as modified by Chernoff.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE AGENCIES OR PUBLISHERS MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

Agricultural Requisites in Latin America (Report of the Joint ECLA/FAO Working Party), 173 p., printed, Sales No.: 1950. II.G.1, \$1.25. Department of Economic Affairs, United Nations, Lake Success, New York, 1950. The use of agricultural requisites (including fisheries) in Latin America and the factors which are retarding the increased production of food (including fishery products) in the region are analyzed in this report. The members of the joint Working Party established by the United Nations Economic Commission for Latin America and the Food and Agriculture Organization visited all the countries of Latin America and investigated the supply situation of agricultural requisites (including fisheries) and collected data for the report. With reference to fisheries, the report states that fisheries are not well developed in Latin America. The 135,000 fishermen of the region land less fish than the 6,300 fishermen of Iceland. "This implies a great potential improvement in fishing operations through the introduction of economic equipment, larger gear, etc.," the report continues. In chapter VII, the material factors influencing fisheries production in Latin America are reported. Included in this chapter are discussions on the present fishing situation, general factors affecting the development of the fisheries (both marine and fresh-water), principal specific impediments to fishery production, and a set of conclusions.

The Canadian Fish Culturist, December 1950, No. 9, 46 p., illus. Department of Fisheries, Ottawa, Canada. This entire issue is devoted to articles on electrical fishing, and they are as follows: "Usefulness of Electrofishing Methods," by Paul F. Elson; "Electrical Methods of Fish Collection," by D. M. Omand; "Canadian Uses of Electrical Fish Shocking Devices," by P. A. Larkin; "Physiological Considerations Involved in Electrical Methods of Fishing," by Kenneth C. Fisher; and "A Direct-Current Electrical Fishing Apparatus," by G. F. M. Smith and P. F. Elson.

Canadian 1950 Marine Oil Report, Foreign Agriculture Circular FFO 22-50, 7 p., processed, December 18,

1950. Office of Foreign Agricultural Relations, U. S. Department of Agriculture, Washington, D. C. Canadian production of marine oils for industrial and edible uses for the first nine months of 1950 is presented in this circular. Comparative data for 1949 are also given. Liver oils are included. Production, foreign trade, prices, and the marketing situation are discussed. Canadian production (excluding Newfoundland) of marine oils for industrial and edible uses was at a high level in 1950, according to this report. Herring oil production in particular was at a high level, and a large winter herring catch was expected. On the other hand, vitamin oil production was at a very low level and was expected to pick up in 1951. The Canadian market for marine oils was slow early in the year but improved considerably since the Korean outbreak. Substantial export sales of body and blubber oils were made but the total value of marine-oil exports in 1950 were below 1949 levels, chiefly as a result of the decline in medicinal oil exports.

Gulf States Marine Fisheries Commission First Annual Report 1949-50 (to the Congress of the United States and to the Governors and Legislators of Alabama, Florida, Louisiana, Mississippi, Texas), 35 p., printed. Gulf States Marine Fisheries Commission, 312 Audubon Building, New Orleans 16, La. Resumes of pre-compact activities and of the six regular and three special meetings of the Commission are given in this report. Also included is a summary of the exploratory fishing cruises by the U. S. Fish and Wildlife Service exploratory fishing vessel Oregon, operating in the Gulf; and a resume of the plans of the Service's research vessel Alaska, which is to carry on research in the Gulf area. In addition, the report gives a short summary of the objectives of the Commission with regard to the inshore fisheries.

The Life History of the Starry Flounder "Platichthys stellatus" (Pallas), by Harold George Orcutt, Fish Bulletin No. 78, 64 p., printed, illus. Bureau of Marine Fisheries, Division of Fish and Game, San Francisco, Calif., 1950. This report deals with the starry flounder, *Platichthys stellatus* (Pallas), found off the West Coast, and presents contributions to the knowledge of this species. Among the subjects covered are distribu-

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

tion and habitat, commercial catch, habits, feeding and food, parasites, spawning, embryological development, larval development, age determination, rate of growth, and age and size at maturity.

Ninth Annual Report of the Atlantic States Marine Fisheries Commission (to the Congress of the United States and to the Governors and Legislators of the Fifteen Compacting States), 68 p., printed, Atlantic States Marine Fisheries Commission, Mt. Vernon, N. Y., December 1950. In this annual report the Commission reports progress on fishery research projects initiated and carried on by the Commission and carried on for it by the U. S. Fish and Wildlife Service. These include studies on clams, shad, and Atlantic salmon. Under the North Atlantic Section of the report are included discussions of projects dealing with lobster, haddock and flounder, clams, Atlantic salmon, herring, sea sculpins, smelt, freezing fish at sea, striped bass, and dams on the Connecticut River as they affect shad. Under the Middle Atlantic Section, there is a discussion of projects dealing with striped bass, fluke, Hudson River shad, fishery research programs in Delaware and New Jersey, Delaware River shad, hard clams, offshore waste disposal, and the Susquehanna shad fishery. The Chesapeake Bay Section includes discussions of projects concerned with striped bass, crab, croaker, Chesapeake Bay shad, and Chesapeake Bay Authority. Under the South Atlantic Section, a discussion of the following programs is included: shrimp, cooperative research, and the current situation of research in the area. Another section of the report deals with the International Convention for the Northwest Atlantic Fisheries, the pollution study project, catch statistics, the reciprocal warden act, shellfish production, fisheries education, Gulf and Pacific Coast developments, the amendment to the Atlantic States Marine Fisheries Compact, fisheries research, and state legislation needed to round out the program of the Commission.

"Nylon Nets Tested on West Coast," article, Trade News, December 1950, vol. 3, no. 6, pp. 6-7, processed, Department of Fisheries, Ottawa, Canada. Recent publications and advertisements commenting on the use and value of nylon netting, as opposed to linen and cotton netting in the whitefish industry of the Great Lakes, recently prompted an exploration into the feasibility of using nylon for salmon gill-netting. The investigation was carried out by S. L. Young, an economist on the staff of the Canadian Fisheries Prices Support Board in Vancouver, and in this report he discusses his findings as to the comparative physical properties of nylon salmon twine, linen salmon twine, and cotton seine twine. In a summary of his report, he states that "nylon is not yet ready for use in British Columbia. It must be remembered that the experiments of this year (1950) are the first steps and improvements may come fast but the obstacles are not small."

(Oregon) Fish Commission Research Briefs, September 1950, vol. 3, no. 1, 49 p., printed, illus. Fish Commission of Oregon, Portland 4, Oregon. Included in this edition of the "Briefs" intended to inform the public, industry, and other interested parties of the current studies of the Commission are the following: "The Umpqua River Shad Fishery;" "Observations on Pulp and Paper Effluents and the Probable Effects of this Pollutant on the Fisheries Resources of the Willamette River in Oregon;" "The Salmon

Catch of the Sports Fishery in the Coastal Rivers of Oregon in 1949;" and "The 1949 Soupin Shark Fishery of Oregon."

Pesca Y Caza, July-August 1950, No. 1, 70 p., illus., processed, in Spanish. Direccion de Pesqueria Y Caza, Ministerio de Agricultura, Lima, Peru. This is the first issue of a publication to be issued periodically by the Peruvian Bureau of Fisheries and Wildlife. This first issue contains a review of Peru's fisheries and wildlife, with a good deal of data on the fisheries included. Also contains statistics on the fish catch for 1946, 1947, and 1948 by species, industrialization, imports and exports, and number of fishermen and fishing boats, a list of fishing companies and canneries operating in the various regions of the country, as well as other background information. A short description of several of the more common species of fish found off of Peru makes up the last part of this publication.

Prospects for the Pilchard Fishery, by J. L. Hart, Circular No. 22, December 1950, 2 p., processed, Pacific Biological Station, Fisheries Research Board of Canada, Nanaimo, B. C. This leaflet gives the biological observations on the British Columbia pilchard fishery which have a bearing on the prospects for pilchards again becoming available along the west coast of Vancouver Island. In conclusion, the author comments: "In view of these observations there is no reason for optimism for a British Columbia commercial pilchard run in 1951 and 1952."

Science in Fisheries, by Lorne Manchester, 23 p., illus. (Reprinted from the Canadian Geographical Journal). Department of Fisheries, Ottawa, Canada. This is a review of the activities of the Department's Fisheries Research Board of Canada. Included are discussions on their salmon investigations, general biological investigations, experimental fishing experiments with various types of gear, and technological investigations.

Survey of Market for Fishery Products in Colombia, by Robert O. Smith, Foreign Market Notes-Fish and Fish Products, Foreign Agricultural Circular, FFP 12-50, December 27, 1950, 7 p. Office of Foreign Agricultural Relations, U. S. Department of Agriculture, Washington 25, D. C. (also available from Branch of Commercial Fisheries, U. S. Fish and Wildlife Service, Washington 25, D. C.). This is a preliminary report (one of 12 issued) giving information on current and potential markets for United States fishery products in Colombia. This survey was carried out in June 1950 jointly by the U. S. Fish and Wildlife Service and the U. S. Department of Agriculture's Office of Foreign Agricultural Relations. In addition to this report, the latter agency has also issued reports on Argentina, Netherlands West Indies, Uruguay, Paraguay, Brazil, Bolivia, Venezuela, Chile, Peru, Surinam, and Ecuador. These reports contain a short discussion of fish consumption, fishery resources, imports of fishery products by each particular country, and some representative fish prices.

"1950 Whale Catch Off Labrador," article, Trade News, December 1950, vol. 3, no. 6, pp. 8-11, illus., processed, Department of Fisheries, Ottawa, Canada. This is a report on the operations of two shore whale factories, one at Hawke Island off the coast of Labrador, the other at Williamsport on the northeast coast of Newfoundland. Production data and methods used are explained.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

Year Book of Caribbean Research, 1949 Supplement (Agriculture, Fisheries, and Forestry), 311 p., processed. Research Branch, Central Secretariat, Caribbean Commission, Kent House, Port-of-Spain, Trinidad, 1950. The first edition of the Year Book of Caribbean Research, containing a record of research and investigations being undertaken in the "Commission territories" of the Caribbean in 1948, was published in May 1949. It was divided into four parts, one of which was "Agriculture, Forestry, Fish and Wildlife." It has been decided to publish a revised edition of the original Year Book periodically and to maintain its records up to date in the interim by the publication of a series of annual supplements of which this is the first. For the sake of convenience, future editions of the Year Book and the annual supplements will be published by sections. Also, a new section entitled "Natural Sciences" has been added. This present bulletin is the first annual supplement covering research and investigations in the fields of Agriculture, Fisheries and Forestry during 1949. Under fisheries are listed the research institutions engaged in some phase of fisheries development or exploration in Barbados, British Guiana, Surinam, and the United States; and under each listing is given a brief resume of the results to date and details of projects initiated since 1948. A select bibliography (including fisheries) of Caribbean research or research of interest to Caribbean territories published in 1948-49 has also been added to this supplement. In a separate section are listed the research personnel and institutions in the area,

Survey of the Marine Fisheries of North Carolina with a Comprehensive View of The Economics of National and World Fisheries, by Harden F. Taylor and a Staff of Associates, 555 p., 91 statistical tables and numerous figures printed, \$10.00. The University of North Carolina Press, Chapel Hill, North Carolina, 1951. Dr. Taylor, his associates, and all others concerned with the publication of this study of North Carolina's marine fisheries are to be commended for presenting a work which is a splendid contribution to our meager supply of fisheries literature of this character. In scope, especially in the economic section, it goes so far beyond the local resources that the facts, figures, and conclusions are of definite interest to the fishing industry in every domestic producing and marketing area. As a critical analysis of economic fishery problems, both State and national, it is a thought-provoking volume. Discussion of the economic facts presented and the interpretations drawn from these facts undoubtedly will wax warmly. It is hoped that such discussion will stimulate similar studies in other areas to the end that the pattern of economic pressures affecting our fisheries may become as well known as those which affect agriculture, forestry, and mining.

The volume is divided into three parts. In the Foreword Dr. Coker details the various steps taken since October 1944, which culminated in the Survey. Part I, Hydrography of North Carolina Marine Waters is contributed by Nelson Marshall. He has covered the sound and offshore waters as to geography, circulation, temperatures, salinity and nutrient salts, bottom, pollution, wind, waves, weather, and finally productivity, followed by

comments, recommendations, and a bibliography. Part II, Biology and Natural History of the Economic Species, is introduced by Dr. Taylor. The eight sections of Part II which deal in varying detail, with the individual species found in North Carolina, are handled by various fishery biologists. Menhaden are discussed by William A. Ellison, Jr., the Edible Finfishes by Eugene W. Roelofs, The Oyster and Other Mollusks by Alphonse F. Chestnut, the Shrimps by Carter Broad, the Blue Crab by John C. Pearson, the Diamond-back Terrapin by Robert E. Coker, the Seaweed Resources by Harold J. Humm, and Marine Angling by Francesca LaMonte. Most sections conclude with a summary or recommendations and each has a bibliography.

In Part III, Economics of the Fisheries of North Carolina, Dr. Taylor introduces his contribution with an explanation of why the treatment of this subject necessarily had to be expanded to a national basis. The problems to be overcome in developing this Part were complex, to say the least. Statistical records were inadequate and there was a complete absence of economic studies of this nature to which to refer. For these very reasons Part III, whether one agrees with all of the conclusions or not, cannot help but be of compelling interest. The Economic Status and Standard of Living of the Coastal Region of North Carolina is briefly treated to start Part III. Then the next 119 pages discuss the Economics of the Fisheries Generally. Under the subhead General and Qualitative are discussed Production, Marketing, Distribution, Consumption, and Manufacturing. Under Quantitative Consideration there are Comparative Magnitudes of the Fisheries, the United States Fisheries, and a Resume. In the latter it is stated that the total quantity of food fish produced in the United States "does not appear to be determined or appreciably affected by the variations in abundance of any species, or of all species of fish, or by any other biological influence in the water." It also appears that "the increased United States production of food fish as a whole has been sold at decreasing prices." Particularly striking is the fact that "the curve of total quantity of food fish produced year by year follows that of the index of industrial production which is typical of the business cycle," and "the value of the fisheries has faithfully followed the curve of national income in both the United States and Canada." Demand alone determines the quantity and value of fish produced. To exhaust a fishery for profit appears impossible because rising prices restrict sales and attract competition from other fishes. The only factor which invariably is beneficial to the fisherman is a strong demand.

Part III concludes with the Economics and Marketing of North Carolina Fisheries, the final portion of this section incorporating Comments and Recommendations. In addition to a liberal number of charts and tables interspersed throughout Part III, there also is an Appendix made up of 55 tables. There is the usual Index and each Part has a table of Contents.

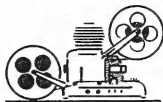
Survey of Marine Fisheries of North Carolina definitely is recommended for reading and as a fine reference book, especially for those interested in its subtitle "The Economics of National and World Fisheries."

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

TRADE LISTS

The Commercial Intelligence Branch, Office of International Trade, U. S. Department of Commerce, has published the following mimeographed trade list. Copies of this list may be obtained by firms in the United States from that Office or from Department of Commerce field offices at \$1.00 per list.

Canneries - Belgium, 10 p. (December 1950). This list gives the names, addresses, and products packed by Belgium canneries. Includes packers of fishery products.



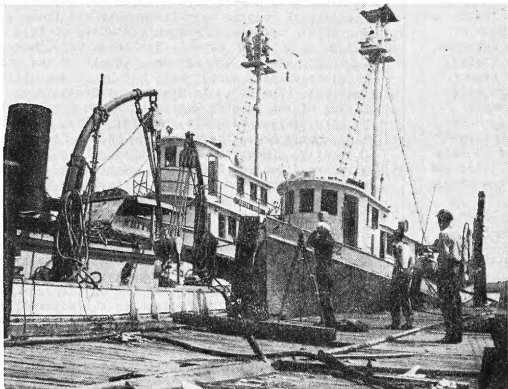
FISHERY MOTION PICTURE

The following motion picture is available only from the source given in listing.



The Story of Menhaden, 16 mm. color and sound, running time 20 minutes. In cooperation with the members of the menhaden industry, this film was produced and supervised by the Branch of Commercial Fisheries, U. S. Fish and Wildlife Service, utilizing the facilities of Sun Dial Films, Inc., New York City; February 1951. This is the story of the menhaden industry in the United States.

The fishing method employed by the menhaden fishery, the processing of menhaden to produce byproducts, and the utilization of these products are portrayed in this film. Many of the misconceptions which have arisen regarding the menhaden fishery are clarified by a straightforward presentation of the facts about this fishery. Because the public knows so little about the largest fishery in the United States, the film will be very useful as an educational medium. Designed for various age groups and all types of audiences, it will be of special interest for educational institutions, agricultural and manufacturing groups who process or use menhaden byproducts, and sport fishing groups, as well as the general



CAMERAMEN AT PASCAGOULA, MISSISSIPPI, SHOOTING SOME SHORE-BASED SCENES FOR THE FILM THE STORY OF MENHADEN BEFORE LEAVING TO FILM ACTUAL FISHING SEQUENCES AT SEA.

television audience. Prints are available on loan. To borrow this film, write directly to the DIVISION OF INFORMATION, FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. Requests will be handled in order of receipt. Each request should indicate clearly the address to which the shipment is to be made. Shipments are usually made by parcel post, the borrower paying return transportation charges, but there is no charge for the use of the film. Prints also have been placed on deposit in Fish and Wildlife Service film libraries and in subdistribution centers. This film is available for telecasting. Applications for television showing should be addressed to the Branch of Commercial Fisheries, Fish and Wildlife Service, Washington 25, D. C.

Information on this production and other films in the Commercial Fisheries Series (of which the Story of Menhaden is No. 8) may be obtained by requesting the brochure Fishery Motion Pictures from the Service.

CONTENTS, CONTINUED

	PAGE		PAGE
FOREIGN (CONT.)		FEDERAL ACTIONS:	73
COSTA RICA:		DEPARTMENT OF COMMERCE:	
HIGHEST COURT RULES COSTA RICAN TERRITORIAL		CODE ON IMPORT AND EXPORT CONTROLS PROPOSED AT	
WATERS EXTEND ONLY THREE NAUTICAL MILES.....	51	RECENT SESSION OF GATT.....	73
DENMARK:		NATIONAL PRODUCTION AUTHORITY:	
DANISH FISHERIES FAIR PLANNED.....	52	COPPER PROHIBITED IN EXTENSIVE LIST OF LESS-	
EGYPT:		ESSENTIAL ITEMS.....	74
FISHING PORT PLANNED FOR PORT SAID.....	53	FURTHER STEPS TO CONSERVE TIN AFFECT USE OF	
FRANCE:		METAL CONTAINERS AND TIN.....	79
FISH CONSUMPTION AND PRODUCTION, 1950.....	53	SUPPLY PROBLEMS OF STEEL SHIPPING CONTAINERS	
FRENCH MOROCCO:		DISCUSSED.....	82
SARDINE PACK UP IN 1950.....	54	SEVERAL ITEMS ADDED TO INVENTORY CONTROL LIST.....	83
ICELAND:		HARD-FIBER CORDAGE CONTROLS APPEAR UNNECESSARY....	83
BULK OF TRAWLER FLEET TO FISH FOR ROSEFISH.....	55	DEFENSE PRODUCTION ADMINISTRATION:	
NEW TRAWLERS FOR ICELANDIC FISHERIES BEING		REDELEGATES CERTAIN FUNCTIONS RELATING TO PRIORI-	
BUILT IN GREAT BRITAIN.....	55	TIES, ALLOCATIONS, ETC.....	84
INDONESIA:		ECONOMIC STABILIZATION AGENCY:	
DEVELOPING FISHERIES WITH ECA AID.....	56	GENERAL CEILING PRICE REGULATION.....	85
JAPAN:		GENERAL WAGE STABILIZATION.....	89
FISHING INDUSTRY IN FINANCIAL STRAITS.....	58	OPENING OF REGIONAL AND DISTRICT PRICE CONTROL	
STATEMENT ON NEW FISHERY RESEARCH PROGRAM.....	61	OFFICES.....	89
DIP NETS WITH LIGHTS USED IN SAURY PIKE FISHERY		DEPARTMENT OF THE INTERIOR:	
SPERM WHALING OPERATIONS OF 1950-51 ANTARCTIC		DEFENSE FISHERIES ADMINISTRATION:	
WHALING EXPEDITION.....	63	SURVEY OF MATERIALS REQUIREMENTS OF FISHERY	
ORDINANCE TO CONTROL SEA OTTER AND FUR-SEAL		INDUSTRIES.....	90
PRODUCTS.....	63	SECOND DEPUTY DEFENSE FISHERIES ADMINISTRATOR	
NETHERLANDS:		NAMED.....	91
FISHING FOR HERRING FOR SALTING PURPOSES BANNED		BRANCH OF ECONOMIC FACILITIES ESTABLISHED AND	
BECAUSE OF OVERSUPPLY.....	63	CHIEF NAMED.....	91
NORWAY:		DEPARTMENT OF STATE:	
NORWEGIAN RESEARCH VESSEL SEEKING EARLY WINTER		INTERIOR REPRESENTATIVE TO ATTEND THIRD SET OF	
HERRING SHOALS.....	64	TARIFF NEGOTIATIONS.....	93
HERRING PRICES FOR 1951 PROPOSED.....	64	POINT FOUR AGREEMENT WITH PERU INCLUDES FISHERY	
NORWEGIAN-SWEDISH SHRIMP DISPUTE SETTLED.....	64	DEVELOPMENT PROJECTS.....	93
PAKISTAN:		THIRD MEETING OF INDO-PACIFIC FISHERIES COUNCIL	
REQUESTS FAO TECHNICAL AID ON FISHERIES.....	64	SCHEDULED.....	94
PORTUGAL:		U. S. COMMISSIONERS APPOINTED TO NORTHWEST	
STATUS OF SARDINE INDUSTRY.....	65	ATLANTIC FISHERIES COMMISSION.....	94
NORTH SEA CONVENTION RATIFIED BY PORTUGAL.....	66	DEPARTMENT OF THE TREASURY:	
THIRD FISHING CONGRESS HELD.....	66	BUREAU OF CUSTOMS:	
SOMALIA:		BANS IMPORTS OF RUSSIAN CANNED CRAB MEAT.....	95
PROPOSED FISHERIES DEVELOPMENT.....	66	1951 TARIFF-RATE QUOTA FOR GROUND FISH (INCLUDING	
SPAIN:		ROSEFISH) FILLETS.....	95
PAIRS "EXPANDING FISHING OPERATIONS OFF NEW-		EIGHTY-SECOND CONGRESS (FIRST SESSION), JANUARY 1951	
FOUNDLAND.....	68	GRAPHS:.....	100
SWEDEN:		LANDINGS AND RECEIPTS.....	100
FOURTH WEST EUROPEAN FISHING CONFERENCE.....	69	COLD STORAGE HOLDINGS AND FREEZINGS OF FISHERY	
TUNISIA:		PRODUCTS.....	102
TUNA FISHING INDUSTRY.....	69	CANNED FISHERY PRODUCTS.....	102
UNION OF SOUTH AFRICA:		PRICES, IMPORTS AND BYPRODUCTS.....	103
SPERM OIL DEMAND AND PRICE INCREASE.....	71	RECENT FISHERY PUBLICATIONS:	
UNITED KINGDOM:		FISH AND WILDLIFE SERVICE PUBLICATIONS.....	104
UNRESTRICTED LANDINGS AT HUMBER PORTS ANNOUNCED		ARTICLE BY FISH AND WILDLIFE SERVICE AUTHORS IN	
SCOTTISH SEAWEED RESEARCH INITIATED.....	72	OTHER PUBLICATIONS.....	105
YUGOSLAVIA:		MISCELLANEOUS PUBLICATIONS.....	105
EXPORTS OF FISHERY PRODUCTS ENCOURAGED.....	72	FISHERY MOTION PICTURE.....	108



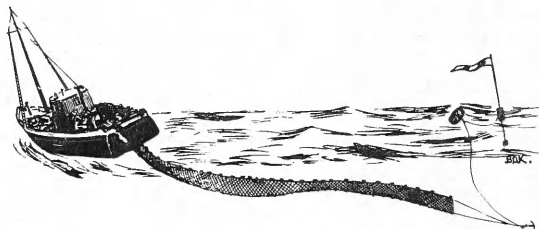
Illustrator--Gustaf T. Sundstrom

Composers--Jean Zalevsky, Carolyn Wood, Betty Cookley

Photograph credits: Cover page and p. 108--E. A. Macklow; p. 54--A. M. Sandberg.

NEW ENGLAND SINK GILL NET

The gill net is a type of gear for catching fish which can be traced back to prehistoric times. However, this gear still maintains a place of importance in world fisheries today. Fishery Leaflet 379, New England Sink Gill Net, deals with the sink gill net used in New England for catching groundfish (cod, haddock, and pollock). This publication describes the operation and construction of the New England sink gill net. Detailed sketches of the gear and vessels used are included.



Fishing by sink gill net on New England banks is carried on at a depth of 20-40 fathoms, up to 10-35 miles offshore, during periods of fair weather. The season starts in early April and continues until late June. It is again resumed in September and generally lasts through December.

Free copies of Fishery Leaflet 379 are available upon request from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

New York
304 College Ave.
Chase 15, Md.

128 D

~~114 W. Thompson St.~~

Robert H. Gibbs, Jr.,

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
WASHINGTON 25, D. C.
OFFICIAL BUSINESS
Permit No. 1015
Form 1214a - 2/51 - 2,750